

CENTENNIAL INTERNATIONAL EXHIBITION,

MELBOURNE, 1888.



A
DESCRIPTIVE CATALOGUE

OF

ROCKS, MINERALS, AND FOSSILS

ILLUSTRATIVE OF THE

GEOLOGY, MINERALOGY & MINING RESOURCES

OF

VICTORIA.

EXHIBITED BY THE DEPARTMENT OF MINES AND BY MINE OWNERS,
SCIENTISTS AND PRIVATE INDIVIDUALS,

UNDER INSTRUCTIONS FROM THE

HONORABLE DUNCAN GILLIES, M.P.,
MINISTER OF MINES,

By CHARLES W. LANGTREE,

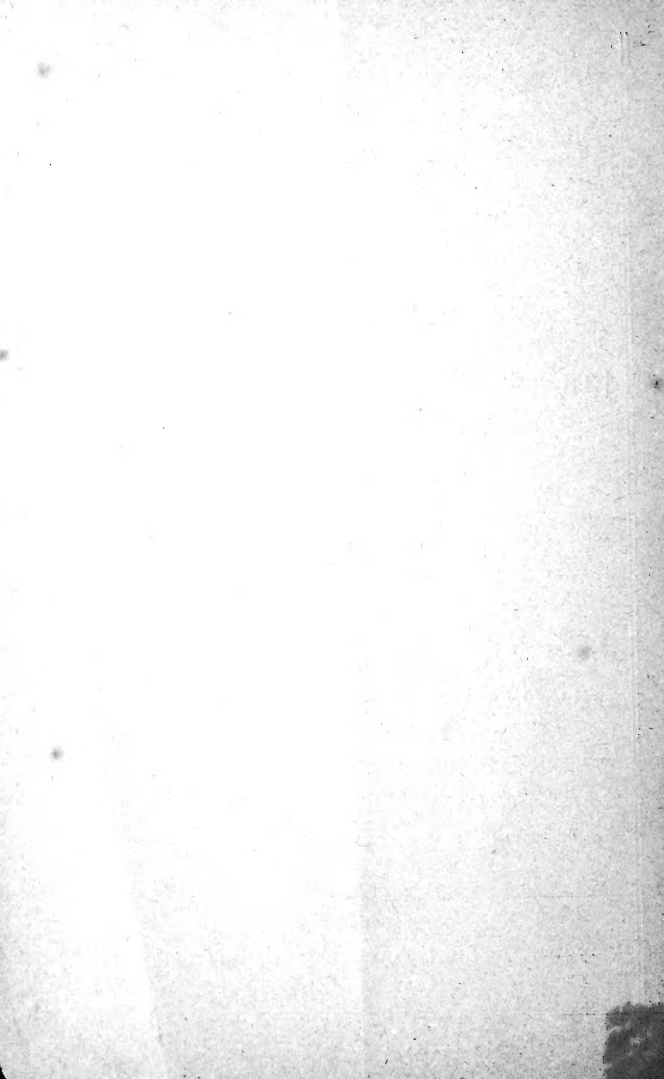
Secretary for Mines and Water Supply, and Chief Mining Surveyor.

DESCRIBED AND ARRANGED BY THE OFFICERS OF THE DEPARTMENT.



McCARRON, BIRD & CO., PRINTERS, 112 COLLINS STREET WEST, MELBOURNE.

1888.



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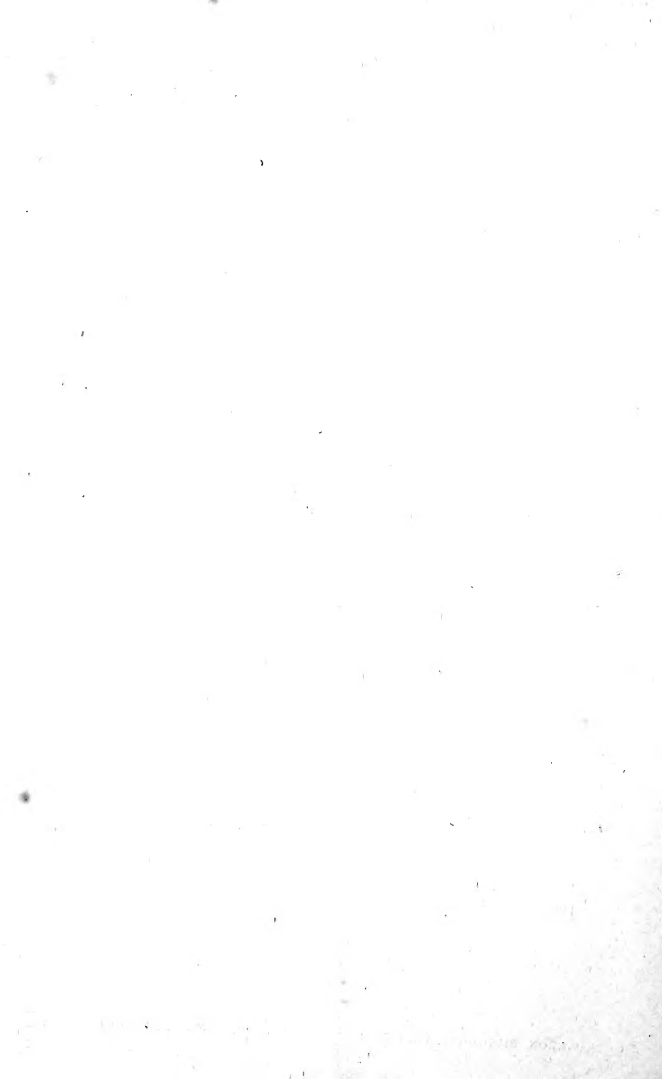
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MUSEUM OF VICTORIA



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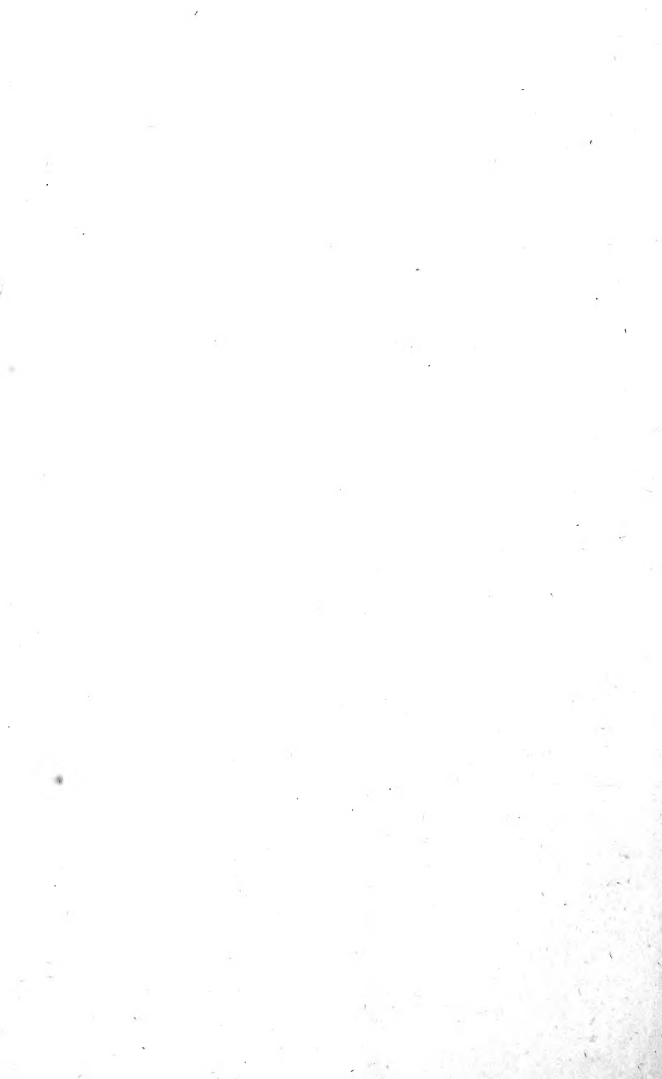
INTRODUCTORY NOTE.

THE Collection of Specimens of Rocks, Fossils, Minerals, Metalliferous Ores, Building Stones, Clays and other mineral products of Victoria exhibited by the Mining Department of that Colony at the Centennial International Exhibition consists of selections from specimens in the possession of the Department, and of contributions by mine-owners, private collectors and others throughout the colony.

The specimens of each particular group of rocks or minerals have been arranged with reference to stratigraphical position and mineralogical character respectively.

In the preparation of the Catalogue the notes of former and present officers of the Geological Survey branch of the Mining Department and of those connected with the Technological Museum have been largely made use of.

The Collection has been arranged and the Catalogue prepared by professional and other officers attached to the Mining Department.





GEOLOGICAL COLLECTION.

SPECIMENS OF ROCKS, ETC.

OLDER IGNEOUS OR PLUTONIC ROCKS.

Division No. 1.

GRANITES, ETC.

(Indicated by carmine colour on the Geological Sketch Map.)

- No. 1. Granite (Syenitic). Medium grained; contains hornblende in addition to the quartz, orthoclase, felspar, and mica; plagioclase felspar in small quantity. Black Range, near Stawell.
2. Granite (Syenitic). Medium grained and compact; composed principally of quartz and orthoclase felspar; contains plagioclase felspar, mica, and hornblende sparingly, and iron pyrites finely disseminated. Black Range, near Stawell.
3. Granite. Common ternary; fine grained, composed of quartz, orthoclase felspar, and black and white mica; plagioclase in small quantity. St. Arnaud.
4. Granite. Fine grained and poor in mica. From a vein in ordinary granite. Learmonth.
5. Granite. Learmonth.
6. Granite. Medium grained; quartz predominating, orthoclase and plagioclase felspars. Chepstowe.
7. Granite. Medium grained; pink orthoclase, and white plagioclase felspars and quartz, poor in mica. Burrumbeet.
8. Granite. Medium grained; ordinary ternary, orthoclase and plagioclase felspars, quartz and mica. Majorca.
9. Granite-porphyry. Fine grained, mixture of quartz and felspar with larger patches of felspar, and some porphyritically disseminated grains of quartz; mica and a little pyrites sparingly distributed. From a dyke traversing ordinary granite. Majorca.
10. Granite. Very fine grained; from a dyke traversing ordinary granite. Majorca.
11. Granite. Moderately fine grained; contains a little plagioclase felspar and pyrites. Majorca.
12. Granite. Majorca.
13. Granite. Majorca.
14. Granite. Medium grained; contains a little plagioclase. Berlin.
15. Granite. Coarse grained; orthoclase felspar predominating, with a little plagioclase, and quartz occurring in small aggregations; black mica generally disseminated. Eastward of Mount Buninyong.
16. Granite. Very fine grained, and composed of fine granular quartz in a felspathic base, with mica sparingly disseminated. From a vein in ordinary granite. Sutherland's Creek, near Geelong.

- No. 17. Granite. Coarse grained; ordinary typical character; contains a little plagioclase felspar. Anakies, near Geelong.
18. Granite. Coarse grained; ordinary typical character; felspar, some of which is plagioclase, predominating. Station Peak.
19. Granite. Moderately fine grained; ordinary typical character; evenly distributed proportions of quartz, brownish-pink orthoclase felspar, white plagioclase, and black mica. Werribee Gorge, near Bacchus Marsh.
20. Granite. Fine to medium grained; ordinary typical character; contains some plagioclase felspar. Big Hill, near Sandhurst.
21. Granite. Fine grained; from a vein in Silurian rocks, near their junction with the ordinary granite. Big Hill railway cutting, near Sandhurst.
22. Granite. Medium grained; ordinary type; contains some plagioclase felspar. Mount Alexander.
23. Granite. Medium grained; enclosing patches of finer grained; contains some plagioclase felspar. Elphinstone.
24. Granite. Medium grained and compact; contains a little plagioclase, poor in mica. Mount Koala, near Heathcote.
25. Granite. Of a gneissose character; friable and stained brown by ferruginous infiltrations. From the wall of a dyke. Heathcote.
26. Granite. Very fine grained; contains a little plagioclase felspar. From a large granite dyke. Heathcote.
- NOTE.—Besides the ordinary fine grained granitic type, numerous local varieties of mineral composition are met with in this dyke, such as aplite (half granite), diorite-aphanite, diorite-porphry, aphanite-porphry, &c.
27. Granite. Fine grained; poor in mica; contains a little plagioclase felspar. A variety from the same dyke as No. 23. This stone is excellently adapted for building furnaces. Heathcote.*
28. Granite. Coarse grained; ordinary type; distribution of mica somewhat irregular; contains a little plagioclase felspar. Pyalong.
29. Granite. Medium grained; flesh-coloured orthoclase felspar predominating, with a little plagioclase. Mica sparingly disseminated. Cape Woolamai.
30. Granite. Somewhat coarse grained; composed of quartz, pink and yellowish orthoclase and plagioclase felspars, and mica, the two latter decomposed. Cape Woolamai.
31. Granite. Fine to medium grained; contains some plagioclase felspar. Wallaby Creek, Mount Disappointment.
32. Granite. Coarse grained; contains a little tourmaline in addition to the ordinary minerals. From near Merton.
33. Granite. Coarse grained; ordinary type, contains a little plagioclase felspar. Tableland, Strathbogie Ranges.
34. Granite (Syenitic). Medium grained; composed of quartz, felspar (some of which is plagioclase), hornblende, and mica; probably a dyke stone. From a washed boulder in the bed of the Delatite River, near Mansfield.
35. Granite. Medium to coarse grained; enclosing patch of very fine grained; contains some plagioclase felspar. Old tin workings, La Trobe River, Gippsland.
36. Granite (Syenitic). Medium grained; contains a little hornblende and plagioclase felspar. La Trobe River, Gippsland.
37. Granite. Fine grained; contains a little plagioclase felspar, and is poor in mica. Wilson's Promontory. The lighthouse at Wilson's Promontory is built of this stone.

* See larger block among special exhibits forwarded by Mr. J. Hedley.

- No. 38. Granite. Coarse grained ; poor in mica. Beechworth.
39. Granite. Coarse grained ; large pink felspar crystals, partly decomposed felspar, some plagioclase felspar, and grey quartz ; mica almost absent. Beechworth.
40. Porphyritic Granite. Coarse and fine grained intermixed ; contains some plagioclase felspar. Beechworth.
41. Granite. Medium to coarse grained ; felspar predominating ; contains a little plagioclase felspar. Beechworth.
42. Granite. Main portion binary and coarse grained ; consisting of quartz and felspar, the remainder contains white mica, coloured brownish in parts by ferruginous infiltrations. Beechworth.
43. Granite. Medium to coarse grained. Almost binary granite, being composed of pink felspar, a little plagioclase felspar and grey quartz, with very little mica. Wooragee, near Beechworth.
44. Granite. Medium grained ; pink orthoclase, white plagioclase felspars, quartz, and mica. Beechworth.
45. Granite. Medium grained ; ordinary type, with a little plagioclase felspar. Beechworth.
46. Granite. Medium grained and compact ; traversed by chalcidonic quartz veins. Beechworth.
47. Granite. Moderately fine grained and compact, contains orthoclase and plagioclase felspars. Beechworth.
48. Granite (Graphic). Fine and coarse grained. Beechworth.
49. Granite. Medium grained ; highly micaceous. From a vein, Beechworth.
50. Granite. Medium grained ; irregularly disseminated, larger felspar crystals, with a little plagioclase felspar, and a few small crystals of tourmaline. Beechworth.
51. Granite. Very fine grained. Beechworth.
52. Granite. Beechworth.
53. Granite. Exceedingly fine grained ; contains a little plagioclase felspar, and is poor in mica. Beechworth.
- Griesen. A variety of granite, consisting principally of quartz, with mica sparingly disseminated. Beechworth.
55. Syenite Granite. Medium grained ; red orthoclase felspar, quartz, and hornblende. Valuable as an ornamental building stone. Gabo Island, off Cape Howe.
56. Granite. Fine grained ; composed chiefly of pink felspar and quartz. Ram Head, near Cape Howe.
57. Granite. General mass medium grained, with larger pieces of felspar, quartz, and silvery mica in patches. Head of Cudgewa Creek.
58. Granite. Cape Woolamai.
59. Granite. Geelong.
60. Granite. Geelong.
61. Granite. Kilmore.
62. Granite. Kilmore.
63. Granite. Kilmore.
64. Granite. Kilmore.
65. Granite. Medium grained ; ordinary type, with some plagioclase felspar. Mitchell River, Gippsland.
66. Syenitic Granite. Medium grained, composed of quartz, orthoclase and plagioclase felspars, black mica, and hornblende. Dargo River, Gippsland.
67. Granite. Coarse grained ; composed chiefly of flesh-coloured felspar and quartz with patches of serpentine-like mineral. Mount Taylor, near Bairnsdale.
68. Granite. Coarse grained, and composed of orthoclase and a little plagioclase felspar. From an intrusive mass, Omeo.

- No. 69. Syenitic Granite. Moderately fine grained; composed of quartz, felspar, black mica, and hornblende. Nunnung, Omeo-road.
70. Granite. Medium grained; enclosing fine grained micaceous nodules. Contains a little plagioclase felspar and pyrite. Omeo.
71. Syenitic Granite. Contains large crystals of brownish-pink felspar, some of which are porphyritically embedded; also white felspar and quartz; hornblende finely and sparingly disseminated, and small partly decomposed garnets. Omeo.
72. Syenite Granite. Fine grained, and composed of quartz, felspar, mica, and hornblende; contains sparsely disseminated iron pyrites. Head of Livingstone Creek, near Omeo.
73. Syenitic Granite. Somewhat coarse grained; pink felspar predominating, also hornblende and plagioclase felspar. Mount Brothers, near Omeo.
74. Syenite Granite. Fine grained and highly feldspathic. From a vein, Omeo.
75. Syenitic Granite. Compact, fine grained, and siliceous; composed of quartz, felspar, mica and hornblende. Snowy River, Gippsland.
76. Granite. Latrobe River.
77. Granite. Mitta Mitta.

OLDER IGNEOUS OR PLUTONIC ROCKS.

Division No. 2.—Class A.

TRAPPAN ROCKS, PORPHYRIES, ETC., FORMING PROTRUDING ROCK MASSES THROUGH LOWER PALÆOZOIC ROCKS.

(Indicated by Indian-red colour on the Geological Sketch Map.)

- No. 1. Basalt. Fine grained and magnetic. Casterton.
2. Phonolite. A dense rather fine grained feldspathic base, thickly impregnated with magnetite. Coleraine.
3. Phonolite. Similar to No. 2, but affected by decomposition, the magnetite more or less converted into limonite. Coleraine.
4. Phonolite. Similar to No. 3; ground mass feldspathic, with concentric ferruginous seams and cavities containing hydrous clayey mineral (lithomarge.) Coleraine.
5. Trachytic Phonolite. Light-brown, with darker irregularly concentric markings; soft, vesicular, partly decomposed feldspathic base, with numerous porphyritically embedded crystals of sanidine. Coleraine.
6. Trachytic Phonolite. Light-purple, somewhat vesicular, soft, partly decomposed feldspathic base, with porphyritically embedded crystals of sanidine. Coleraine.
7. Trachytic Phonolite. Cream-coloured; somewhat vesicular, partly decomposed feldspathic base, with porphyritically embedded crystals of sanidine. Coleraine.
8. Trachytic Phonolite. Greyish-brown; finely vesicular and porous, partly decomposed feldspathic base, with porphyritically embedded crystals of sanidine. Coleraine.
9. Quartz and Felspar Porphyry. Dense compact feldspathic base, with porphyritically disseminated crystals of quartz and felspar. Nigretta Falls, Wannon River.
10. Quartz and Felspar Porphyry. Similar to No. 8, but somewhat lighter coloured. Nigretta Falls, Wannon River.

- No. 11. Quartz and Felspar Porphyry. Dark-grey felspathic base, with crystals of quartz and felspar. Cavendish.
12. Felspar Porphyry. Brownish-pink felspathic base, with crystals of felspar and a very few crystals of quartz. Cavendish.
13. Felsite Porphyry. Dark greenish-grey fine dense felspathic rock, rendered very slightly porphyritic by the occurrence of a few minute felspar crystals. Cavendish.
14. Gabbro (Diallage Rock). From near Dewing's Ford, Barrabool Hills, West of Geelong.

The following is taken from Professor Ulrich's description of this rock, in the catalogue of specimens at the Technological Museum, Melbourne:—"A coarsely crystalline granular mixture of light-green 'labradorite,' and of a dark-green augitic mineral, which, according to its lustre and cleavage, is diallage. On some specimens diallage has been observed of a darker colour than the rest, and with the angle of cleavage of hornblende which would indicate an alliance to *Uralite*.

"This rock occurs as an extensive mass, surrounded by Mesozoic rocks, but evidently of older date than the latter, which contain interstratified conglomerate beds, partly composed of pebbles of the gabbro. On account of its fine colour and texture, it is well adapted for ornamental purposes; but from its great hardness and toughness is expensive to work. The following are the results of analysis of the rock by Mr. J. Cosmo Newbery:—

—	Analysis of the Rock in mass.	Soluble Portion.	Insoluble Portion.
Silica	50·84	46·34	53·94
Iron Sesquioxide ...	0·52	1·30	...
Iron Protoxide ...	6·99	...	11·78
Alumina	12·92	29·05	2·80
Lime	14·35	14·56	14·39
Magnesia	10·97	3·44	16·13
Soda	traces }	4·51	...
Potassa... ..	1·83 }	1·75	...
Loss by ignition ...	...	...	...
Water	0·71	...	...
	99·13	100·95	99·04

"40·06 per cent. is soluble in hydrochloric acid, and the analysis of this portion proves it to be labradorite, whilst that of the insoluble one comes very near to the mean composition of diallage."

15. Gabbro (Diallage Rock). Dark-grey nearly black, dense crystalline granular rock, composed principally of diallage and labradorite. Mount Camel.
16. Syenite Porphyry. Dark-grey, medium grained crystalline granular base, composed of felspar and hornblende, with crystals of felspar and very little mica, grains of pyrrhotite and much plagioclase felspar. Mount Macedon.
17. Syenite Porphyry. Similar to No. 16. Mount Macedon.
18. Felspar Porphyry. Dark-grey dense finely crystalline granular hornblendic and felspathic base, with crystals of glassy looking felspar, and small siliceous geodes filling vesicular cavities. Mount Macedon.

- No. 19. Greenstone (Diabase). From Aborigines' tomahawk quarries, near Lancefield.
20. Decomposed Felspar Porphyry. Dense-grey felspathic base, with embedded crystals of decomposed felspar. Used locally as a building stone, being soft to work and hardening on exposure. Mount Macedon.
21. Quartz-Felsite Porphyry. Grey micro-crystalline ground mass of felspar and quartz with crystals of quartz and orthoclase felspar and a little mica. Watts River, near Healesville.
22. Quartz Porphyrite (Hornblendic.) Dark-grey silico-felspathic and hornblendic base, with crystals of felspars, a few quartz grains, exceedingly fine specks of pyrites. Near Marysville.
23. Quartz Porphyrite (Felsitic.) Dark-grey silico-felspathic rock, containing small crystals of quartz and both orthoclase and plagioclase felspar. North of Yarra River, opposite Warburton.
24. Syenite Granite. Tambo River (No Yong.)
25. Syenite. Contains a little plagioclase felspar and specks of iron pyrites. Livingstone Creek.
26. Syenite Granite. Livingstone Creek.
27. Quartz Porphyry. Omeo.
28. Quartz Porphyry. Tamboo River, near Haunted Stream.
29. Syenite Porphyry. Omeo.
30. Felspar Porphyry. Omeo.
31. Quartz Porphyry (Elvanite.) Mitta Mitta.
32. Porphyry. Mitta Mitta.
33. Porphyritic Syenite. Tamboo River.
34. Quartz Porphyry. No Yong.
35. Felsite. No Yong.
36. Hornblendic Porphyry. Yeerung.
37. Quartz Porphyrite. Omeo.
38. Hornblende Porphyry (?) Omeo.
39. Hornblende Porphyrite, with accessory Augite. Omeo.
40. Quartz Porphyrite. Navigation Creek.
41. Red Porphyry (Coarse). Mitta Mitta.
42. Quartz Porphyrite. Navigation Creek.
43. Brecciated Quartz Porphyry. Day's Creek, near Omeo.
44. Felspathic Granite Porphyry (Intrusive). Day's Hill, Omeo.

NOTE.—The foregoing specimens, Nos. 1 to 44 inclusive, represent igneous rocks occurring as rock masses in various localities. Their precise geological position is uncertain; but in some cases they are blended with the true granites, into which they pass by slow gradations, and in others they protrude through Lower Palæozoic rocks, so that they are clearly younger than the latter. Their mineralogical characteristics are very varied, several different combinations frequently occurring in a single block of stone.

Class B.

"CONTEMPORANEOUS TRAPS." IGNEOUS ROCKS ASSOCIATED OR INTERBEDDED WITH SEDIMENTARY ROCKS OF UPPER PALÆOZOIC AGE.

(Indicated by light burnt umber colour on Geological Sketch Map.)

45. Felstone (Porphyritic). Dark-grey, crypto-crystalline-granular siliceous base, through which are sparingly disseminated minute crystals of quartz and felspar and small specks of black mica. From a boulder in the Broken River, Barjarg.

- No. 46. Felstone Porphyry. Grey, very finely crystalline-granular silico-felspathic base, with finely disseminated black mica and pyrites. From a boulder in the Howqua River.
47. Felstone. Dark-greenish-grey dense rock, containing minute crystals of iron pyrites disseminated throughout the mass. From a boulder in the Jamieson River.
48. Serpentine. Somewhat decomposed and earthy. Contains fine chromic iron. From near Mount Wellington.
49. Serpentine. Contains grains of chromic iron. Mount Wellington.
50. Porphyry. Black; dense felsite base, with crystals of quartz and felspar porphyritically embedded. Avon River, Gippsland.
51. Porphyry. Dense massive dark-purple felsite base, with crystals of quartz and flesh-coloured felspar. Avon River.
52. Porphyry. Grey felsite base, with crystals of pink felspar and small crystals of quartz. Avon River.
53. Porphyry. Purple felsite base, with crystals of pink felspar and quartz. Avon River.
54. Porphyry. Dark-purple base, with crystals of pink felspar and quartz. Avon River.
55. Porphyry. Purple base, with crystals of quartz and felspar. Avon River.
56. Porphyry. Dense dark-grey silico-felspathic base, with crystals of quartz and white felspar. Avon River.
57. Felsite. Dull purple felsitic base, with a few porphyritically embedded quartz crystals, and small patches of a serpentine-like mineral. Avon River.
58. Melaphyre. Purple felsitic base, with cavities containing epidote and chlorite or leucosite. Avon River.
59. Melaphyre. Purple felsitic base, the felspar crystals mostly decomposed, with cavities containing epidote chalcidony, leucosite, and distinct crystals of quartz. Avon River.
60. Melaphyre. Purple felsitic base, with a few porphyritically embedded quartz crystals, and numerous amygdaloidal cavities containing chalcidonic geodes. Avon River.
61. Melaphyre. Greyish-purple compact felsitic rock, with darker patches. Discoloured by oxide of iron. Avon River.
62. Porphyritic Melaphyre. Dense compact blackish-green felsitic base, with a few porphyritically embedded crystals of quartz and felspar. Avon River.
63. Porphyritic Melaphyre. Exceedingly fine, dense, greenish-grey felsitic base, with a few porphyritically embedded crystals of felspar. Avon River.
64. Melaphyre. Dark-grey and purple felsitic rock; vesicular in parts, some of the vesicular cavities being filled with calcite and epidote. Apparently an altered basalt. Avon River.
65. Melaphyre. Purple and greenish dense felsitic rock; vesicular in parts, and somewhat discoloured by iron infiltrations. Like No. 50, apparently an altered basalt. Avon River.

NOTE.—The foregoing specimens, Nos. 31 to 51 inclusive, represent rocks occurring associated, and in some cases interbedded, with rocks of Upper Palæozoic age (? Upper Devonian).

The porphyries and melaphyres of the Avon River, in particular, are found interbedded with sandstones, conglomerates, and shales, and may be regarded as representing the lava-flows of the period, altered from their original condition by natural chemical action.

OLDER IGNEOUS OR PLUTONIC ROCKS.

Division No. 3.—Class A.

ROCKS OCCURRING AS DYKES IN PALÆOZOIC ROCKS, AND NOT YET PROVED TO BE INTERSECTED OR IMMEDIATELY ACCOMPANIED BY AURIFEROUS QUARTZ VEINS.

(Indicated by vermilion colour, not shown on Geological Sketch Map).

- No. 1. Dyke Stone (decomposed). Compact, homogeneous, felspathic rock. From a dyke near Stawell.
2. Felsite Porphyry (Quartz Porphyry). Dense greyish-white, siliceous base, with porphyritically embedded quartz crystals and thin veins of calcite. From 1510 ft. deep. Newington Mine, Stawell.
3. "Elvan" Dyke. Dense greenish silico-felspathic rock. Contains iron pyrites sparingly disseminated. From 660 ft. deep. Newington Mine, Stawell.
4. Gabbro (?). Dark crystalline-granular rock, which, from a microscopic examination made by A. W. Howitt, Esq., F.G.S., is composed of—
 1. Triclinic feldspar, apparently of the labradorite anorthite groups.
 2. An amphibole hornblende mineral.
 3. A rhombic pyroxene, probably belonging to the Enstatite or Bronzite groups.
 4. A little brown magnesia mica.
 5. A very little quartz.
 From a rolled mass in bed of deep lead, Working Miners' Company's Mine, Homebush.
5. Felstone Porphyry (Quartz Porphyry). Finely crystalline-granular base, with much quartz and crystals in grains, and larger crystals of feldspar, of a greenish-yellow colour; affected by decomposition, and impregnated with iron pyrites. From a dyke traversing Lower Silurian rocks in the Band and Albion Consols Mine, Sebastopol, near Ballarat.

Quartz Porphyry (Elvanite). A typical quartz porphyry, consisting of a pale greenish-white felsitic base, throughout which are disseminated crystals of quartz and feldspar. From a dyke traversing Lower Silurian rocks. Bristol Hill, Maryborough.
7. Syenite. Orthoclase and hornblende, with a little quartz and plagioclase feldspar sparingly disseminated. Granite Hill, Talbot.
8. Syenite. Similar to No. 7. Granite Hills, Talbot.
9. Syenite. Orthoclase and hornblende, the latter partly converted into a chlorite-like mineral; a little quartz, plagioclase feldspar, and pyrites. Long Gully, Talbot.
10. Porphyry. Grey felsitic base, with crystals of orthoclase quartz and mica. Nuggety Gully, Talbot.
11. Porphyry. Similar to No. 10, and from same locality.
12. Syenite. The feldspar predominant, the hornblende converted into a chlorite-like mineral. From Ranges between Mount Greenock and Clunes.
13. Quartz Porphyry (Eurite Porphyry). Light-grey and pink felstone base, densely impregnated with crystals and grains of quartz. The presence of mica in exceedingly fine particles gives this rock a character approaching that of granite porphyry. From a dyke, Maldon.
14. Greenstone (Diorite?). A dense compact rock, consisting principally of a finely crystalline-granular compound of feldspar and hornblende. From a dyke traversing Silurian rocks on the road between Heathcote and Mount Carmel.

- No. 15. Felstone. More or less changed into claystone. Aberfeldy River, above Dream Creek.
16. Felstone. Similar to No. 14. Aberfeldy River, above Dream Creek.
17. Hornstone (variety of quartz). Very vesicular. The vesicular cavities apparently produced by some mineral decomposed and removed. Aberfeldy River, above Dream Creek.
18. Diabase. Dark River.
19. Diabase (?) Dark mottled-grey rock, composed principally of felspar and hornblende. Mount Howitt.
20. Hornblende and epidote rock. From a dyke, Snowy Creek.
21. Felstone Porphyry. Fine dense felsitic base, with porphyritically disseminated quartz crystals. From a dyke, Nunnung, Omeo-road.
22. Porphyry. Contains a few grains of copper pyrites. Day's Creek, Omeo.
23. Syenite. Contains orthoclase, a little plagioclase felspar, hornblende, and a little pyrites sparingly disseminated. Day's Creek, Omeo.
24. Diorite Porphyry.
25. Diorite. Omeo.
26. Syenite Porphyry. Livingstone Creek, near Omeo.
27. Aphanite. Day's Creek, Omeo.
28. Gabbro (Diallage Rock). Omeo.
29. Quartz Porphyry. Dry Gully, Omeo.
30. Quartz Porphyry. Dry Gully, Omeo.
31. Felsitic Dyke Stone. Decomposed; with enclosed kernels of lithomarge. Omeo.
32. Felsitic Dyke Stone. Decomposed. Omeo.
33. Felspar and hornblende porphyry. Omeo.
34. Anamesite (Basalt). Omeo.
35. Syenite. Omeo.
36. Porphyry. Omeo.
37. Porphyry. Omeo.
38. Porphyry. Omeo.
39. Porphyry. Omeo.
40. Felspar Porphyry. Omeo.

Class B.

DYKE STONES INTERSECTED BY AURIFEROUS QUARTZ VEINS.

NOTE.—The dykes from which the specimens included in this class were taken vary from a few to several hundred feet in thickness, and are all accompanied or traversed by auriferous quartz veins or lodes; they are generally known as diorite dykes.

With few exceptions, such dykes are associated with, or in close proximity to, all auriferous quartz veins yet opened in Upper Silurian rocks, to which they appear in this colony to be confined.

The auriferous quartz veins accompany them in every imaginable way—longitudinally along the walls, or through the body of the dyke; transversely, either vertically or horizontally, from wall to wall; or in bunches, strings, or irregular veins.

As regards the mineral composition of these diorite dyke stones, a digest of remarks by Professor Ulrich, in his catalogue of his specimens in the Industrial and Technological Museum, Melbourne, is to the effect that they are “essentially compounds of oligoclase and hornblende, occasionally associated with quartz and mica, and also known under the general term

'greenstone'— 'hornblendic greenstone,' in contradistinction to the 'augitic' greenstone, 'Diabase.'" That the mineral composition and structure vary greatly in different parts of the same dyke—as in the case of Cohen's Reef, Walhalla—from "granitic texture with triclinic felspar and hornblende plainly perceptible" to "micro-crystalline, granular-felstone like, with neither hornblende nor felspar recognisable;" or the dyke at the Thomson River Copper Mine, which varies from "a coarse granular highly hornblendic diorite (nearly pure hornblendic rock in places), through fine granular to a nearly dense highly felspathic aphanite."

No. 41. Elvan Dyke. Ararat.

42. Dyke Stone. Highly felspathic, fine grained, partly decomposed; contains small disseminated crystals of iron pyrites. Luckie Reef, Alexandra.
43. Dyke Stone (Diorite.) Dense, massive, and composed principally of hornblende, with fine grains of iron pyrites. Crossover, Gippsland.
44. Dyke Stone (Mica Diorite.) Highly micaceous dark-grey, slightly decomposed; a compound of felspar, decomposed hornblende, and mica; it also contains fine grains of pyrites. Crossover, Gippsland.
45. Dyke Stone (Mica Diorite.) Similar to foregoing, but more micaceous; also contains fine grains of pyrites. Crossover, Gippsland.
46. Dyke Stone. Much decomposed; felspathic, micaceous, and slightly ferruginous. From a dyke traversing the bed-rock of a lead. Tangil, Gippsland.
47. Dyke Stone. Similar to the foregoing, and from the same locality.
48. Dyke Stone (Micaceous Elvan Porphyry). Much decomposed; of granitic character, consisting of quartz, felspar, and mica, with portion of a quartz vein attached. Kaffir's Hill, Foster, South Gippsland.
49. Dyke Stone (Micaceous Elvan Porphyry). Decomposed; silico-felspathic and micaceous; from northern extension of foregoing. Ophir Reef, Foster.
50. Dyke Stone (Diorite). Fine grained; felspathic and hornblendic, but much decomposed. Contains copper and iron pyrites sparingly disseminated, and is traversed by thin veins and disseminated grains of calcite. The Thomson River copper lode is associated with this dyke. Thomson River near Walhalla.
51. Dyke Stone (Syenite). Apparently a rock intermediate between syenite and diorite; orthoclase, with a considerable quantity of plagioclase, hornblende, and a little felspar; quartz and pyrites sparingly disseminated. Eastern branch, Stringer's Creek, Walhalla.
52. Dyke Stone (Diorite), with a few disseminated specks of pyrites. Eastern Branch, Stringer's Creek, Walhalla.
53. Dyke Stone (Diorite Aphanite). Highly felspathic; from the so-called "Cohen's Reef," which is accompanied and traversed by highly auriferous quartz veins; contains also iron and arsenical pyrites, which latter are regarded on this line of reef as an infallible indication of the proximity of gold-bearing quartz. Walhalla.
54. Dyke Stone (Diorite Aphanite). Fine grained, highly felspathic, impregnated with arsenical and iron pyrites, and traversed by a quartz vein. Cohen's Reef, Walhalla.
55. Dyke Stone (Diorite). Contains a little iron and arsenical pyrites. Long Tunnel Extended Mine, Walhalla.

No. 56. Dyke Stone. Same locality as foregoing.

57. Dyke Stone (Diorite). Contains a little mica and a few specks of pyrites. Long Tunnel Extended Mine, Walhalla.
58. Dyke Stone (Diorite). Decomposed; contains small limonite pseudomorph after pyrites. Eureka Gully, Walhalla.
59. Dyke Stone (Diorite). Massive crystalline-granular, rather coarse grained, and highly hornblendic. From a dyke crossing the BB Creek, near Jericho, North Gippsland.
60. Dyke Stone (Felsite). Very fine grained, and finely impregnated with iron pyrites. Lady Franklin Mine. Wood's Point.
61. Dyke Stone. Decomposed and stained by ferruginous matter. From a dyke 60 feet thick, at a depth of 80 feet, Shamrock Reef, Wood's Point.
62. Dyke Stone (apparently decomposed Diorite). Fine grained and partly decomposed; finely impregnated with iron pyrites. From a depth of 100 feet, Shamrock Reef, Wood's Point.
63. Dyke Stone (apparently an altered Diorite). Slightly decomposed; coarse grained, highly hornblendic, and slightly impregnated with copper pyrites. From a depth of 150 feet, Shamrock Reef, Wood's Point.
64. Dyke Stone (Diorite). Undecomposed; coarse grained and highly hornblendic. From a depth of 180 feet, Shamrock Reef, Wood's Point.
65. Dyke Stone (Diorite). Highly decomposed. From a depth of 20 feet, Morning Star, Wood's Point.
66. Dyke Stone (Diorite). Decomposed and discoloured by iron from decomposition of iron pyrites. From a depth of 150 feet, Morning Star Dyke, Wood's Point.
67. Dyke Stone (Diorite). Similar to No. 61. From a depth of 160 feet, Morning Star Dyke, Wood's Point.
68. Dyke Stone (Diorite). Decomposed; ferruginous coating on joint plane. From a depth of 200 feet, Morning Star Dyke, Wood's Point.
69. Dyke Stone (Diorite). Partly decomposed; strongly impregnated with iron and arsenical pyrites. From a depth of 230 feet, Morning Star Dyke, Wood's Point.
70. Dyke Stone (Diorite). Decomposed, but still containing some undecomposed hornblende; somewhat micaceous, and spotted dark-brown from decomposition of pyrites. From a depth of 250 feet, Morning Star Dyke, Wood's Point.
71. Dyke Stone (Diorite). Partly decomposed; highly impregnated with undecomposed iron pyrites and arsenical pyrites. From a depth of 250 feet, Morning Star Reef, Wood's Point.
72. Dyke Stone (Diorite). Decomposed, and strongly impregnated with iron, resulting from decomposition of pyrites. From a depth of 200 feet, Morning Star Dyke, Wood's Point.
73. Dyke Stone (Diorite). Undecomposed; moderately finely crystalline-granular, hornblendic, and siliceous. Contains a few grains of a mineral resembling hypersthene. From 10 feet above level of Goulburn River, Morning Star Dyke, Wood's Point.
74. Dyke Stone (Diorite). Dense, fine grained, passing into Diorite Aphanite, siliceous, and containing very fine iron pyrites. From 10 feet above level Goulburn River, Morning Star Dyke, Wood's Point.
75. Dyke Stone (Diorite Aphanite). Exceedingly dense, fine grained, and siliceous, passing into quartzite. From near quartz reef, at 10 feet above level of Goulburn River, Morning Star Dyke, Wood's Point.

- No. 76. Dyke Stone (Diorite). Dense, felspathic, and with hornblende somewhat decomposed; impregnated with iron pyrites and a little decomposed mica. From near quartz reef, at a depth of 300 feet, Morning Star Dyke, Wood's Point.
77. Dyke Stone (Diorite). Dense, felspathic, with pale-green mottlings, due to decomposition of hornblende; impregnated with pyrites, and intersected by small quartz veins. From a depth of 350 feet, Morning Star Dyke, Wood's Point.
78. Dyke Stone (Diorite). Grey, dense, silico-felspathic, and very finely micaceous, with pyrites, sparingly disseminated. From a depth of 350 feet, Morning Star Dyke, Wood's Point.
79. Dyke Stone (Diorite). Dull white, dense, crystalline-granular; silico-felspathic, with black partially decomposed hornblende patches. This is a typical specimen, illustrating the character of the undecomposed dyke stone. From 350 to 600 feet deep, Morning Star Reef, Wood's Point.
80. Dyke Stone (Diorite). Fine grained, with a little mica quartz and iron pyrites sparingly disseminated. From lower levels, Morning Star Dyke, Wood's Point.
81. Dyke Stone (Diorite). Dense, fine grained, and somewhat impregnated with iron pyrites. From a depth of 505 feet, Morning Star Dyke, Wood's Point.
82. Dyke Stone (Diorite). Very fine grained, compact, and somewhat siliceous, with generally disseminated iron pyrites, and intersected by small quartz veins. From a depth of 595 feet, Morning Star Dyke, Wood's Point.
83. Dyke Stone (Diorite Aphanite). Thickly impregnated with iron and arsenical pyrites. Gaffney's Creek.
84. Dyke Stone (Diorite Aphanite). Fine grained, compact, and sparsely impregnated with very fine pyrites. From a dyke 80 feet wide at a depth of 10 feet, Castle Reef, Raspberry Creek.
85. Dyke Stone (Diorite Aphanite). Exceedingly fine and dense silico-felspathic, with greenish decomposed hornblende; contains iron pyrites generally disseminated, and is accompanied by quartz veins. From a depth of 30 feet, Castle Reef, Raspberry Creek.
86. Dyke Stone (Diorite). Very fine grained, with small bunches of quartz, grains of calcspar, and a little iron pyrites. From a depth of 50 feet, Castle Reef, Raspberry Creek.
87. Dyke Stone (Diorite). Much decomposed and discoloured by iron. From a dyke 9 feet thick, at a depth of 120 feet, Homeward Bound Reef, Raspberry Creek.
88. Dyke Stone (Diorite). Decomposed, and nearly free from pyrites. From a depth of 120 feet, Homeward Bound Reef, Raspberry Creek.
89. Dyke Stone (Diorite). Slightly decomposed, and strongly impregnated with fine iron and arsenical pyrites. From a depth of 200 feet, Homeward Bound Reef, Raspberry Creek.
90. Dyke Stone (Diorite). Compact, with quartz vein and disseminated iron and arseno pyrites. From a depth of 450 feet. Homeward Bound Reef, Raspberry Creek.
91. Dyke Stone (Diorite). Decomposed and ferruginous. Londonderry Reef, Enoch's Point.
92. Dyke Stone. Compact and partially decomposed; finely impregnated with iron pyrites; fissure surfaces coated with calcspar. Londonderry Reef, Enoch's Point.
93. Dyke Stone (Diorite). Soft, decomposed and ferruginous. Luck's-all Reef, Enoch's Point.

- No. 94. Dyke Stone. Of granitic character; orthoclase, a little plagioclase feldspar, decomposed mica, a little quartz sparingly disseminated, and yellow stains from some mineral removed by decomposition. Portions of the dyke whence this specimen was taken are traversed by auriferous quartz veins. Sandy Creek, near Beechworth.
95. Pegmatite. Containing arsenical pyrites more or less decomposed. Swift's Creek.
96. Pegmatite. Similar to No. 91, only the arsenical pyrites entirely decomposed. Swift's Creek.

NOTE.—The dykes of which Nos. 48 to 89 are specimens lie in an almost continuous belt, having a bearing about N.N.W., extending from Walhalla to Enoch's Point—a distance in a straight line of nearly fifty miles—along the entire length of which richly auriferous quartz and alluvial workings have been proved at short intervals.

NEWER IGNEOUS OR VOLCANIC ROCKS.

Division No. 1.—Class A.

LAVA DYKES.

NOTE.—These Dykes appear to be of Older Volcanic age.

- No. 1. Basalt. Greenish-brown, compact earthy rock, decomposed; joints coated with calcite. From a dyke, Stawell.
2. Basalt. Dark olive, fine grained, earthy, and decomposed; contains mica in tolerably large plates, and decomposed patches of what appears to have been olivine (?) From a depth of 718 feet, Hercules and Energetic Company, New Chum Reef, Sandhurst.
3. Basalt-wacke. Greenish-grey, white spotted, and decomposed. From a depth of 241 feet, New Chum Reef Gold Mining Company, Sandhurst.
4. Decomposed Felspathic Dyke (Claystone). Yellowish-white, fine, soapy, felspathic, and much decomposed. From a depth of 87 feet, V.R. Gold Mining Company, New Chum Reef, Sandhurst.
5. Basalt. Dark greenish-grey, earthy and decomposed, with numerous minute white and black specks, the latter a black clay-like mineral, a decomposition product. From a depth of 375 feet, V.R. Gold Mining Company, New Chum Reef, Sandhurst.
6. Basalt. Dark-grey, partly decomposed. From a depth of 688 feet, V.R. Gold Mining Company, New Chum Reef, Sandhurst.
7. "Lava" (Basalt). Undecomposed, dark, dense, compact, and augitic. From a "lava dyke," Koch's Pioneer Company, Sandhurst.
8. Basalt. Dark-grey, very dense and compact, augitic; exceedingly fine iron pyrites on portions of face of joint. From a "lava dyke," Garden Gully Reef, Sandhurst.
9. Basalt. Dark-grey and compact, with numerous small vesicles filled with calcite. From a dyke, Sparrow Hawk Gully, Sandhurst.
10. Basalt. Very dark-grey, dense, and compact; joints coated with calcite. From a dyke, Sparrow Hawk Gully, Sandhurst.
11. Basalt. Very dark-grey, dense and compact; some minute vesicles filled with calcite and a black, clay-like mineral; a decomposition product. From a dyke, Bird's Reef, Sandhurst.

- No. 12. Basalt. Dark-grey, dense, and compact; contains several large cavities filled or coated with calcite. From a dyke, Victoria Reef, Sandhurst.
13. Basalt. Dark-grey, very dense, and compact, contains large crystals of augite porphyritically embedded, and some fair-sized plates of mica, with calcite in small vesicles. From a dyke, Victoria Reef, Sandhurst.
14. Basalt. Dark-grey, dense, and compact; partially decomposed. From a dyke, Empire Reef, Sandhurst.
15. Basalt. Grey, vesicular and decomposed. From a "lava streak," Thistle Reef, Sandhurst.
- NOTE.—The foregoing specimens (Nos. 2 to 15 inclusive) are from dykes which form characteristic accompaniments of the auriferous quartz reefs of the Sandhurst district, where they are known by the miners as "lava streaks."
16. Basalt. Decomposed and intersected by veins of calcite. From a dyke traversing Mesozoic rocks near a coal seam, Kilcunda, near Western Port.
17. Basalt. Similar to and from the same locality as foregoing.
18. Basalt. Greyish-black, dense, and compact; rich in iron, and partly discoloured by infiltrations of the same. From a dyke in Mesozoic rocks, Western Port.

Class B.

OLDER VOLCANIC ROCKS REPRESENTING THE LAVA-FLOWS OF THE MIDDLE TERTIARY (MIOCENE) PERIOD.

(Indicated by pink colour with bars on the Geological Sketch Map.)

- No. 19. Basalt. Light-grey, and stained with iron infiltrations; much decomposed. North Melbourne.
20. Basalt. Purplish-brown; discoloured by iron, partly decomposed, highly vesicular; some of the vesicles contain hydrous silicate of alumina (lithomarge). North Melbourne.
21. Basalt. Resembling the foregoing, but more decomposed. Railway cutting, North Melbourne.
22. Basalt. Dark-brown, decomposed, and vesicular; vesicles filled with earthy matter. Railway cutting, North Melbourne.
23. Basalt. Dark-brown, and somewhat decomposed, numerous vesicular cavities filled with earthy matter and carbonate of lime. Thomastown.
24. Basalt. Dark, dense, and rich in iron; a characteristic specimen of the undecomposed Older Volcanic rock of the Brandy Creek and surrounding district. From a shaft 100 feet deep, near Crossover, Gippsland.
25. Basalt. Dark-grey, compact, and vesicular; contains arragonite and very large mammillary concretions of ferro-calcite. Tangil, Gippsland.
26. Basalt. Dark, dense, and compact. From a shaft 100 feet deep. Seaton, near Glenmaggie, Gippsland.
27. Basalt. Dark-grey, dense, and compact. Dargo High Plains, North Gippsland.
28. Basalt. Dense, containing felspar, augite, olivine, and titaniferous and magnetic oxide of iron. Dargo High Plains, North Gippsland.

Division No. 2.

NEWER VOLCANIC ROCKS.

(Indicated by pink colour on the Geological Sketch Map.)

These rocks represent the lava-flows of the Upper Tertiary and (possibly) Post Tertiary periods.

- No. 1. Basalt (Dolerite). Light-grey and porous. Lower Wannon Falls, Redruth.
2. Basalt. Grey; highly vesicular. Lower Wannon Falls, Redruth.
3. Basalt. Purplish-grey, largely vesicular. From a shaft, Linton.
4. Basalt. Webster's Hill.
5. Basalt (Pumice). Scoriaceous; purplish-brown; largely vesicular and porous. Learmonth.
6. Basalt. Greyish-purple; very finely vesicular. Bald Hill, near Learmonth.
7. Basalt. Dark greenish-grey; finely porous and coarsely vesicular, vesicles coated or filled with crystals of phacolite and a few little balls of pale-blue mesolite. Clunes.
8. Basalt. Vesicular and porous; the interiors of the vesicles are coated with small but well-formed crystals of chabasite and mesolite. Clunes.
9. Basalt. Largely vesicular and somewhat porous; contains chabazite and a pale-blue concretionary mineral (mesolite). Clunes.
10. Basalt. Largely vesicular, with mammillary concretions of carbonate of lime, discoloured by iron. Corisande Company's Mine, Clunes.
11. Basalt. Hard, dense, and compact. Clunes.
12. Basalt. Dark-grey; finely porous; portion vesicular, with mammillary concretions of arragonite in cavities. Ballarat.
13. Basalt. Dark-grey; dense and compact; second rock, shaft of Great North-West Company, Ballarat.
14. Basalt. Brownish-purple; finely scoriaceous, contains porphyritically enclosed crystals of oligoclase. Mount Pisgah, near Ballarat.
15. Basalt. Scoriaceous; greyish-purple; highly but finely vesicular. Wombat Hill, Daylesford.
16. Basalt. Scoriaceous; greyish-purple. St. Just Hill, Daylesford.
17. Volcanic Ash. Brown's Hill.
18. Basalt. Dark-grey, dense, and finely jointed. Green Hills Lead, near Blackwood.
19. Basalt. Similar to No. 18, and from same locality.
20. Basalt. Grey, dense, and compact. Green Hills, near Blackwood.
21. Basalt. Grey; highly vesicular. Woodstock-on-Loddon.
22. Basalt. Scoriaceous; very largely vesicular. Woodstock-on-Loddon.
23. Volcanic Bomb. Weatherboard Hill.
24. Volcanic Mud. Light-brown, and showing a laminar structure, traversed by chalcedonic veins. Waterworks Tunnel, Anakies.
25. Basalt (Anamesite). Dark greyish-black, very dense, and compact. Melton.
26. Basalt. Grey; finely crystalline-granular and finely porous; poor in olivine, but containing numerous scales of specular iron. Malmsbury.
27. Basalt. Black; very compact, hard, and brittle. with conchoidal fracture resembling Lydian-stone; rendered porphyritic by small grains of olivine; formerly used by the Aborigines for cutting implements. Coliban River.

An analysis by Mr. J. Cosmo Newbéry gave the following results:—5 per cent. soluble in hydrochloric acid—

	Soluble Portion.	Insoluble Portion.
Silica	34·80	63·39
Alumina	38·58	16·11
Manganese Protoxide	trace	1·01
Iron Sesquioxide	18·07	10·03
Lime	7·12	5·26
Magnesia	trace	3·41
Potash } ... ..	...	2·21
Soda } ... ..	...	...
Titanic Acid ... ..	...	0·63
Water	1·43	...
Oxide of Copper ... ..	...	trace
	100·00	102·05

- No. 28. Basalt. Dense. Egyptian Company's Shaft, Malmsbury.
 29. Basalt (Dolerite). Grey; finely porous and vesicular. Axe Creek, east of Sandhurst.
 30. Palagonite Tufa. With enclosed grains of tachylite. Williams-town.
 31. Basalt. Dark-grey and vesicular, Melbourne.
 32. Basalt. Greyish-brown; highly vesicular; cavities coated with white mineral, consisting of siliceous carbonate of lime and magnesia. Brunswick.
 33. Basalt. Dark-grey; compact and finely vesicular. Footscray.
 34. Basalt. Grey; finely vesicular, and porous. Kilmore.
 35. Basalt. Grey; finely porous, and vesicular, rich in decomposed olivine. Coburg.
 36. Basalt. Anakies.
 37. Basalt. Brunswick.
 38. Basalt. Very vesicular. Brown's Hill.
 39. Basalt. Bald Hill.
 40. Basalt. Vesicular. Clunes.
 41. Basalt. Ascot.
 42. Volcanic Bomb. (Basalt). Creswick.

METAMORPHIC (AZOIC) ROCKS.

CRYSTALLINE SCHISTS—METAMORPHIC STRATIFIED ROCKS.

(Indicated by light-purple colour on the Geological Sketch Map.)

NOTE.—Under this head are included specimens of the "Regional" metamorphic rocks only, or those occupying extended area, and indicated by light-purple tint on the Geological Sketch Map. They are probably of Lower Silurian age, if not older, and were originally aqueously deposited rocks, which have been altered over wide areas by the action of heat or other causes. The "contact" metamorphic rocks, or those stratified rocks which have been altered within limited zones surrounding outcrops of granite, porphyry, &c., are included among the ordinary Palæozoic rocks.

- No. 1. **Granulite.** A medium grained granular compound of quartz and felspar, with very fine and sparingly disseminated silvery-white mica. Glenelg River, north of Casterton.
2. **Granulite.** Very fine grained, and somewhat discoloured by ferruginous infiltrations; mica almost wanting. Glenelg River, north of Casterton.
3. **Serpentine Schist.** A fine grained rudely schistose quartzose rock, with layers and veins of serpentine. Glenelg River, north of Casterton.
4. **Chlorite Slate.** Soft, greenish, and fissile; compound principally of chlorite. Glenelg River, north of Casterton.
5. **Talcose Slate.** Soft, greenish-grey, and finely laminated; with numerous minute square cavities, probably once occupied by pyrites, which have subsequently decomposed. Glenelg River, north of Casterton.
6. **Granulite.** White and pink; composed of intimately-blended felspar and quartz; small druses of exceedingly minute crystals of quartz occur in cavities. Mount Mackersey, near Cavendish.
7. **Quartzite.** A greyish-white, dense, fine-grained, and compact siliceous rock, slightly discoloured by iron in cavities and on joints. Mount Mackersey, near Cavendish.
8. **Argillaceous Schist.** Pale-greenish mottled with red and purple; rudely fissile, and composed of fine grains of quartzose and argillaceous matter in imperfectly separated layers. Mount Mackersey, near Cavendish.
9. **Quartz Schist.** Yellowish-brown; evenly foliated, and composed of alternating thin quartzose and argillaceous layers, with lenticular patches of fine quartzite. Mount Mackersey, near Cavendish.
10. **Hornblende Schist.** Greyish-black, compact, and fibrous-granular; foliation imperfect. East slope of Mount Ararat.
11. **Mica Schist.** Grey, silky, and highly micaceous; finely foliated and much contorted. Moyston.
12. **Quartz Schist.** Grey, foliated, and silky micaceous; composed of thin alternate quartzose and argillo-micaceous layers. A transition rock between quartz schist and mica schist. Near Ararat.
13. **Granitoid Schist.** Grey, micaceous, and approaching granite in composition and character. From near boundary of granite and metamorphic rock, Stawell.
14. **Quartz Schist.** Grey in alternate light and dark bands; composed of highly contorted foliated layers of quartz, separated by thinner and poorly micaceous argillaceous laminæ. Stawell.
15. **Schist.** Grey, and composed of irregular quartzose and argillaceous layers, imperfectly foliated and very slightly metamorphosed; traversed by quartz veins, and shows marks of "slickenside." Stawell.
16. **Quartzose Hornblende Schist.** Dark-grey, dense, fine grained; indurated and imperfectly schistose. Stawell.
17. **Siliceous Schist.** Grey, fine grained, and indurated. Stawell.
18. **Quartzose Hornblende Schist.** Grey, fine grained, and traversed by quartz veins. Stawell.
19. **Quartzite.** Dark-grey, dense, impalpable, and highly indurated. Stawell.
20. **Talcose Slate.** Light-grey with darker spots; soft, earthy, and slightly metamorphic. Bald Hill, Stawell.
21. **Slate.** Dark-grey; cleavage and stratification non-coincident contains cubes of iron pyrites, and is traversed by a quartz vein obliquely across both cleavage and stratification. Stawell.

- No. 22. Nodular Schist (Chiasolite). Yellowish-brown, of silky lustre; fine wavy and crumpled foliation with numerous nodules occasioning a knotty texture. Chiltern.
23. Nodular Schist (Chiasolite Schist). Similar to foregoing. Chiltern.
24. Nodular Schist (Chiasolite Schist). Similar to No. 23, but exhibiting the knotted texture in a more marked degree. Chiltern.
25. Chiasolite Schist. Grey, nodular, and wavy. Indigo Creek, Chiltern.
26. Mica Schist. Grey, fine grained, and evenly foliated. Indigo Creek, Chiltern.
27. Gneissose Schist. Yellowish-brown and white. Lady Franklin Hill, Barnawartha.
28. Mica Schist. Lady Franklin Hill, Barnawartha.
29. Quartzose Mica Schist. Reddish-brown; principally composed of granular quartz and mica. Bethanga.
30. Granulite. White, and composed principally of granular quartz in a felspathic base, with a little silvery-white mica. Bethanga.
31. Quartz Schist. Grey, and of a granitoid character; schistose structure very imperfect. From wall of a lode, Bethanga.
32. Quartz Schist. Grey and rudely fissile; contains pyrites. From wall of a lode, Bethanga.
33. Gneissose Quartz Schist. Dark-grey and white; a crystalline granular rock, composed of imperfectly foliated layers of quartz and mica, Bethanga.
34. Gneissose Quartz Schist. Yellowish-brown, and composed of alternating rudely foliated and contorted layers of quartz felspar, and mica, Bethanga.
35. Metamorphic Breccia. Composed of angular fragments of fine siliceous rock, quartz, and felspar, connected with siliceous matter; contains a little fluor-spar. From wall of tin lode, east from Beechworth.
36. Metamorphic Breccia. Composed of angular siliceous and granitic fragments cemented together, passing into and attached to granite. From granite boundary, east from Beechworth.
37. Metamorphic Breccia. Composed of angular fragments of siliceous rock, the interstices between which are filled or lined.
38. Metamorphic Breccio-Conglomerate. Showing a granitoid character; composed of rounded and angular fragments of vitreous quartz with associated felspar and mica. From granite boundary, east from Beechworth.
39. Quartzite. Grey; highly indurated, and showing a slightly brecciated structure. From near granite boundary, east of Beechworth.
40. Quartzite (Gneissose). Grey, with irregular pink felspathic laminations. From near granite boundary, east from Beechworth.
41. Granitoid Schist. Composed of quartz, felspar, and mica, showing faintly schistose structure. From wall of a dyke, Sandy Creek, near Beechworth.
42. Gneissose Schist. Highly felspathic and finely micaceous, with thin siliceous layers; strongly but unevenly foliated. From near granite boundary, east of Beechworth.
43. Spotted Micaceous Schist. Grey, with darker spots; fine, micaceous, and rudely schistose. Hillsborough, east from Beechworth.
44. Gneissose Mica Schist. Composed of rudely schistose irregularly foliated layers of quartz, felspar, and mica. Mayford Spur, Dargo River, North Gippsland.

- No. 45. Granitoid Quartz Schist. Composed of quartz, felspar, and mica; imperfectly schistose. Mayford Spur, Dargo River, North Gippsland.
46. Mica Schist. Felspathic micaceous rock; mica predominating in tolerably large scales; foliation somewhat uneven. Mayford Spur, Dargo River, North Gippsland.
47. Gneiss. Of granitoid character; composed of quartz, felspar, and mica, in tolerably even proportions, and alternating somewhat irregular foliations. Omeo.
48. Mica Schist. Quartzose, with mica in fine plates; foliation imperfect. Omeo.
49. Hornblende Schist (Hornblende Rock). Somewhat granular, and composed of felspar and hornblende, the latter predominating; without fissile texture, but exhibiting schistose structure in mass. Omeo.
50. Quartzitic Schist. Day's Creek, Omeo.
51. Granitoid Schist. Livingstone Creek, Omeo.
52. Gneissose Quartz Schist. Ensay.
53. Granitoid Schist. At contact with intrusive dyke. Omeo.
54. Gneiss. Contact with dyke stone. Day's Creek, Omeo.
55. Micaceous Sandstone. Omeo.
56. Granitoid Micaceous Sandstone. Livingstone Creek, Omeo.
57. Mica Schist. Omeo.
58. Granitoid Quartz and Mica Schist. Omeo.
59. Nodular Mica Schist. Omeo.
60. Quartzite. From contact with intrusive granite. Day's Hill, Omeo.
61. Sandstone. Dark River.
62. Micaceous Schist. Traversed by quartz veins. Dark River.
63. Nodular Schist. Dark River.
64. Corrugated Schist. Dark River.
65. Gneiss. Composed of irregularly foliated layers of quartz, felspar, and mica, and contains decomposed garnets. Turnback Crossing, Snowy River, Gippsland.
66. Quartz Schist. Ararat.
67. Mica Schist. Ararat.
68. Argillaceous Gneiss. Stawell.
69. Quartz and Mica Schist. Harrietville.
70. Slate. Casterton.
71. Metamorphic Breccia. Felltimber Creek.
72. Mica Schist. Tucker's Hill.
73. Gneissose Schist. Omeo.
74. Granitoid Schist. Omeo.
75. Sandstone. Dark River.
76. Crystalline Slate. Dark River.
77. Schistose Conglomerate. Dark River.

LOWER PALÆOZOIC.

Division. No. 1.

LOWER SILURIAN.

(Indicated by neutral tint on the Geological Sketch Map.)

NOTE.—These rocks have been identified on the palæontological evidence of their characteristic fossils (graptolites), as the equivalents of the Llandiello flags of Wales, by Professor M'Coy, who, in his writings, alludes to the fact that the ancient Romans obtained gold in Wales from quartz reefs traversing rocks of exactly the same geological age as the gold-bearing rocks of Victoria.

The Lower Silurian rocks prevail as the Palæozoic rock foundation or bed-rock, westward of a line from Melbourne to Heathcote, and have also been identified in the extreme eastern portion of the colony. Upon them rest the alluvial gold-drifts, and traversing them are the auriferous quartz reefs of the western goldfields.

The largest and most persistent belts and individual lines of quartz reefs are found in the rocks of this division of the Silurian series, and the largest nuggets of gold have been obtained in the alluvial deposits resting on them.

In this division are included the "contact" metamorphic rocks, or those Lower Silurian rocks which have been locally metamorphosed near the boundaries of the granite or other plutonic rocks.

- No. 1. Sandstone. Banded yellowish, white, and brown; fine grained, gritty, finely micaceous, and schistose. Landsborough.
2. Schist. Slightly metamorphic; bluish-grey, and finely micaceous; contains numerous markings of some undetermined mineral. From near granite boundary, Berlin.
3. Schist. Light-brown; nodular, with numerous dark spots indicative of partial metamorphism; earthy and finely micaceous. From near granite boundary, Berlin.
4. Slaty Schist. Greenish-grey, with numerous dark spots, and of a finely nodular character indicative of partial metamorphism. Berlin.
5. Grit. Grey; fine grained, highly siliceous and imperfectly schistose. Wedderburn.
6. Argillaceous Schist. Grey; finely micaceous and somewhat metamorphic. Wedderburn.
7. Clay-Slate. Yellowish-brown, and much decomposed. Wedderburn.
8. Slaty Schist. Grey and bluish alternating argillaceous and finely arenaceous laminae traversed by a quartz vein. Pitfield Plains.
9. Schistose Sandstone. Light yellowish-brown; somewhat earthy, friable, and partly decomposed; contains decomposed iron pyrites. Staffordshire Reef, near Ballarat.
10. Clay-Slate. Light-olive, with somewhat uneven lamination; traversed by thin ferruginous veins. Staffordshire Reef, near Ballarat.
11. Clay-Slate. Light bluish-grey; cleavage somewhat uneven. Staffordshire Reef, near Ballarat.
12. Clay-Shale. Nearly white; much decomposed; cleavage uneven. Staffordshire Reef, near Ballarat.
13. Clay-Shale. Yellowish-white and light-brown; much decomposed; Staffordshire Reef, near Ballarat.
14. Clay-Shale. Containing portion of the "Indicator" pyrites vein, so called from the fact of its being regarded as a sure guide to auriferous quartz veins. Ballarat.
15. Schistose Sandstone. Brown, with faint dark spots, and finely nodular, indicative of partial metamorphism; finely micaceous, and irregularly fissile. Amherst.
16. Clay-Shale. Dark-blue and unevenly fissile; contains large cubes of iron pyrites. Dunolly.
17. Clay-Shale. Light grey and imperfectly fissile; contains large isolated cubes of decomposed iron pyrites. Dunolly.
18. Slaty Schist. Dark-blue, and somewhat earthy; iron pyrites coating joints. Blucher's Reef, Maryborough.
19. Slaty Schist. Similar to foregoing, and with pyrites generally disseminated. Blucher's Reef, Maryborough.

- No. 20. Slate. Dark greyish-blue; evenly fissile, and almost suitable for roofing purposes. Moorabool River, near Meredith.
21. Slate. Light-grey. Percydale.
22. Slate. Grey; of fine texture; somewhat earthy and evenly fissile. Clunes.
23. Grit. Light-brown; fine grained and highly siliceous. Daylesford.
24. Sandstone. Brown, medium grained, earthy, micaceous, and irregularly schistose; somewhat decomposed. Daylesford.
25. Sandstone. Similar to foregoing, but finer grained. Daylesford.
26. Sandstone. White, yellow, and light-brown; medium grained; somewhat earthy and friable; traversed by a thin quartz vein. Daylesford.
27. Sandstone. Drab-coloured to brown; somewhat soft, earthy, friable, and finely micaceous. Daylesford.
28. Sandstone. Yellow, fine grained, earthy, friable, and micaceous. Daylesford.
29. Sandstone. Similar to foregoing, but more micaceous. Daylesford.
30. Sandstone. Greenish-grey; fine grained, earthy, friable, and micaceous. Daylesford.
31. Sandstone. Greenish-yellow; fine grained, earthy, and finely micaceous. Daylesford.
32. Sandstone. Drab-coloured; fine grained and very earthy. Daylesford.
33. Sandstone. Grey; fine grained, finely micaceous, and very earthy. Daylesford.
34. Clay-Shale. Light olive; soft and somewhat decomposed; lamination tolerably even. Daylesford.
35. Clay-Shale. Similar to foregoing, and very finely micaceous. Daylesford.
36. Mudstone. Light-grey; somewhat decomposed, very earthy, and finely micaceous. Daylesford.
37. Shale. Blue; earthy and finely porous, with fine mica sparingly disseminated. Daylesford.
38. Slaty Shale. Blue; cleavage and stratification non-coincident; indistinct fossil markings (graptolites) on stratification planes. Daylesford.
39. Clay-Slate. Grey; cleavage and stratification non-coincident. Daylesford.
40. Grit. Dark-grey; fine grained, highly indurated, and siliceous. From near granite boundary, Maldon.
41. Grit. Similar to foregoing, in contact with granite and quartz. An interesting specimen as illustrative of the junction of partly metamorphosed sedimentary rock with granite. Maldon.
42. Sandstone. Grey; hard, fine grained, and somewhat earthy. Maldon.
43. Schistose Grit. From a thin band. Dark-grey, fine grained, and highly siliceous; outer portion of face of more earthy character and somewhat decomposed. Maldon.
44. Slate. Blue, and finely spotted, with somewhat uneven cleavage. Fryerstown.
45. Slate. Grey; argillaceous, and of fine texture; one face thickly studded with cubes of iron pyrites. Fryerstown.
46. Slate. Dark-blue, with brown ferruginous discolourations; joints coated with quartz, iron pyrites, and an asbestiform mineral. Fryerstown.
47. Slate-flag. Bluish-grey, with darker spots indicative of partial metamorphism; dense, compact, and finely arenaceous; joints coated with calcite and iron pyrites. Can be sawn into slabs useful for many purposes. Barker's Creek, near Castlemaine.

- No. 48. Grit. Dark-grey; fine grained and finely micaceous, indurated to the condition of a quartzite. Waterworks tunnel, Coliban River.
49. Sandstone. Purplish-brown; earthy, finely micaceous, and somewhat decomposed. Garden Gully, Sandhurst.
50. Sandstone. Yellowish-brown; somewhat earthy and micaceous. One-tree Hill, Sandhurst.
51. Sandstone. Grey; fine grained, highly siliceous, and finely micaceous. Kangaroo Flat, Sandhurst.
52. Sandstone. Grey; fine grained, and highly siliceous; one face and a joint coated with quartz. Koch's Pioneer, Sandhurst.
53. Sandstone. Grey; fine grained, schistose, and pyritous. Snobb's Hill, Sandhurst.
54. Sandstone. Grey; schistose, and highly siliceous; one face thinly coated with fine wrinkled satin slate. Snobb's Hill, Sandhurst.
55. Shale. Grey; finely arenaceous, cleavage irregular; contains finely disseminated iron pyrites. Great Extended Hustler's, Sandhurst.
56. Slate. Light bluish-grey; soft and earthy. Great Extended Hustler's, Sandhurst.
57. Slate. Bluish-grey; unevenly fissile. Contains iron pyrites. Snobb's Hill, Sandhurst.
58. Slate. Bluish-grey; unevenly fissile. Long Gully, Sandhurst.
59. Slate. Grey; unevenly fissile. Snobb's Hill, Sandhurst.
60. Schist. Grey; partly arenaceous and partly slaty, irregularly fissile. Garden Gully Reef, Sandhurst.
61. Slaty Shale. Dark-blue; unevenly fissile. Koch's Pioneer, Sandhurst.
62. Slate. Dark-bluish-black with satiny lustre; shows marks of "slide." Joints and fissures coated with fine pyrites. Snobb's Hill, Sandhurst.
63. Mudstone. Dark bluish-grey; imperfectly fissile; conchoidal fracture. Garden Gully, Sandhurst.
64. Slate and fine Siliceous Sandstone, intimately mixed, and containing very irregular veins and small bunches of quartz with iron and arsenical pyrites. Apparently the solidified detritus of a fracture seam near a lode. Sandhurst.
65. Shale. Humboldt Mine, Malmsbury.
66. Clay Slate. Light greenish-grey, with brown ferruginous discolourations; soapy feel; jointed with ferruginous veins. Garden Gully, Sandhurst.
67. Shale. Light-brown; somewhat decomposed, cleavage irregular. Snobb's Hill, Sandhurst.
68. Slaty Shale. Light-grey; soft, and decomposed, evenly fissile. Snobb's Hill, Sandhurst.
69. Slate. Similar to foregoing, but of lighter colour and finer texture. Near Gisborne.
70. Slaty Shale. Dark blue; of uneven cleavage, and containing fossil markings (graptolites). Near Gisborne.
71. Slaty Shale. Dark bluish-grey, and earthy; one face covered with indistinct fossil markings (graptolites). Sunbury.
72. Sandstone. Grey; gritty, and rather coarse grained. South-west from Heathcote.
73. Sandstone. Yellowish-brown; medium grained, and somewhat felspathic; slightly altered; traversed by quartz veins. Rutherglen.
74. Sandstone. Drab-coloured; earthy, and micaceous; traversed by ferruginous quartz veins. Rutherglen.

- No. 75. Schistose Mudstone. Brown; irregularly schistose; finely micaceous and somewhat altered. Rutherglen.
76. Mudstone. Yellowish-brown; earthy, and decomposed; traversed by ferruginous quartz veins. Rutherglen.
77. Slate. Greyish-blue; very evenly fissile. Near Beechworth.
78. Slaty Schist. Variegated greenish grey and brown; finely siliceous; cleavage and stratification non-coincident. One face polished. Stanley, near Beechworth.
79. Quartzose Grit. Light-grey, and somewhat coarse-grained. Morse's Creek.
80. Sandstone. Light purplish-brown; fine grained, minutely porous, somewhat earthy, and micaceous. Morse's Creek.
81. Schistose Sandstone. Purplish-brown; fine grained, and earthy, with slaty laminations. Morse's Creek.
82. Slaty Shale. Dark-greyish blue; much crumpled and intersected by quartz veins. Morse's Creek.
- NOTE.—The rocks of which Nos. 72 to 82 inclusive are specimens have been provisionally classed as Lower Silurian, though it is possible they may belong to the Upper Silurian group.
83. Clay Slate. Maryborough.
84. Slaty Rock. Copper in joints. Mt. Egerton.
85. Micaceous Slate, with concretionary markings. Daylesford.
86. Slate, with decomposed pyrites. Amherst.
87. Shale. Ascot.
88. Indurated Shale. Ballarat.
89. Graptolites, the characteristic fossils of the Lower Silurian rocks, on fine dark-blue slate. Near Bacchus Marsh.
90. Graptolites on brown slate. Chewton.
91. Graptolites. Daylesford.
92. Graptolites. Daylesford.
93. Graptolites. Daylesford.

LOWER PALÆOZOIC.

Division No. 2.

UPPER SILURIAN.

(Indicated by light neutral grey on the Geological Sketch Map.)

NOTE.—The Upper Silurian rocks of Victoria have been referred by Professor McCoy, on very clear palæontological evidence, to the Wenlock Shale and May Hill Sandstone group of English geology. They occupy the central portion of the colony, extending eastward of a line from Melbourne to Heathcote, as far as the Macalister River in Gippsland, and a line thence to near Benalla. The alluvial gold-drifts resting on and derived from these rocks, though often of great richness, have generally been found to be more "patchy," and of more limited extent as regards their auriferous character, than those resting on Lower Silurian rocks, and have not yielded nuggets of so great a size.

The quartz reefs traversing the Upper Silurian are fewer in number, and less persistent, but, on the average, richer in gold than those in the Lower Silurian, and are, as a rule, associated with diorite dykes. The "contact" metamorphic rocks of this division are included.

- No. 1. Breccia. Angular fragments of chalcidonic quartzite and fine granular quartz in a highly siliceous base. Heathcote.

- No. 2. Siliceous Grit. Yellowish brown, and composed of somewhat coarse granules of quartz in an argillo-siliceous base. Red Hill, Heathcote.
3. Siliceous Grit. Similar to foregoing, but finer grained, and spotted with brown ferruginous discolourations. Heathcote.
 4. Basanite (Lydian-stone). Black, exceedingly fine grained and siliceous, and intersected by a network of fine quartz veins; occurs as a band in Silurian rocks. Heathcote.
 5. Quartzite. Grey and fine-grained. From a thin band. Heathcote.
 6. Quartzite. Greyish-white and fine-grained. From a thick fossiliferous band, Mount Ida, Heathcote.
 7. Argillaceous Schist. Light yellowish-brown, with darker spots; finely micaceous and somewhat metamorphic. Red Hill, Heathcote.
 8. Clay Slate. Light blue; finely laminated, with quartz veins in joints. Heathcote.
 9. Clay Shale (Metamorphic). Light greenish-grey, with darker markings; fine, soapy, and much decomposed. Heathcote.
 10. Clay Shale. Similar to foregoing, but darker. From near wall of Selwynite vein, west from Mount Ida, near Heathcote.
 11. Cherty Quartzite (Metamorphic). Dark-purple; hard and dense; very fine-grained and somewhat ferruginous. From near contact of Silurian and greenstone, south from Mount Camel, near Redcastle.
 12. Cherty Quartzite (Metamorphic). Grey, with dark-grey and brown markings; hard, dense, and very fine-grained, intersected by fine quartz veins. From near contact of Silurian and greenstone, south from Mount Camel, near Redcastle.
 13. Cherty Quartzite (Metamorphic). Similar to foregoing, but purplish. From near contact of Silurian and greenstone, Mount Pleasant, near Redcastle.
 14. Schistose Quartzite (Metamorphic). Grey to blue; compact, fine-grained, and showing stratification. Same locality as foregoing.
 15. Schistose Quartzite (Metamorphic). Brown; fine grained and very ferruginous. Same locality.
 16. Indurated Shale (Metamorphic). Grey, with darker spots and lighter markings; finely siliceous and nodular. Same locality.
 17. Grit. Greenish-grey; moderately fine grained and highly siliceous. Approaches a flagstone in character. Same locality.
 18. Sandstone. Bluish-grey; compact and fine grained; traversed by fine quartz-veins. Staffordshire Flat, near Heathcote.
 19. Sandstone. Yellowish-brown and purple; fine-grained; traversed by small irregular quartz veins, and contains infiltrations of manganiferous iron. Same locality.
 20. Mudstone. Light yellowish-brown; finely arenaceous, and intersected by numerous thin ferruginous veins. Redcastle.
 21. Sandstone. Grey; fine-grained, and indurated; contains a few small cubes of iron pyrites. Costerfield.
 22. Sandstone. Drab-coloured; finely gritty and schistose. Costerfield.
 23. Mudstone. Grey, with darker blotches; fine-grained and siliceous; contains sparingly disseminated iron pyrites, and traversed by very thin quartz veins. Costerfield.
 24. Mudstone. Similar to foregoing, and also containing embedded nodules of dark-brown quartzite. Costerfield.
 25. Mudstone. Light yellowish-brown and finely arenaceous. Costerfield.
 26. Indurated Mudstone. Rushworth.

- No. 27. Mudstone (Shale). Light yellowish-brown; laminated and decomposed. Lonsdale-street east, Melbourne.
28. Conglomerate. Grey, and composed of small rounded pebbles of quartz and of quartzite in a gritty micaceous base. Anderson's Creek.
29. Claystone. White, yellow, and brown; somewhat finely arenaceous; much decomposed, and contains ferruginous quartz veins. Eltham.
30. Quartzite. Dark-grey, and compact. From near junction of Upper Silurian rocks with granite. Wallaby Creek, Mount Disappointment.
31. Breccia. Grey; dense, and composed of small angular fragments of quartzite and calcareous particles in a siliceous base, with which they appear to be partly blended. Railway cutting, Seymour.
32. Quartzite. Grey; dense, and fine grained. Same locality as foregoing.
33. Indurated siliceous Mudstone (Metamorphic.) Grey and light-brown; finely but irregularly laminated; shows peculiar jointed structure. From near junction of Silurian and Triassic rocks, Lilydale.
34. Limestone (Marble). Grey; compact and finely crystalline-granular. Lilydale.
35. Limestone (Marble). Grey, with light-brown markings; compact and crystalline. Lilydale.
36. Limestone. Grey to yellowish; compact and micro-crystalline, somewhat siliceous. Lilydale.
37. Grit. Dark-grey; very fine-grained and compact; highly indurated. Scotchman's Creek, near Warburton.
38. Quartzite (Metamorphic). Very dark, fine, and dense. From near boundary of Upper Silurian and granite. Strathbogie Ranges.
39. Metamorphic Rock. Dark-grey; dense, micro-crystalline granular rock. Same locality as foregoing.
40. Decomposed Metamorphic Rock. Yellowish-brown; finely granular, feldspathic, and containing a light mica. The ferruginous joints intersecting this rock contain gold. From near boundary of Upper Silurian and granite. Mead's Claim, Strathbogie Ranges.
41. Decomposed Metamorphic Rock. Similar to foregoing, but more ferruginous. Same locality as foregoing.
42. Quartzose Grit. Greyish-white; somewhat coarse-grained and slightly feldspathic. Locally used for ashlar work. Mansfield.
43. Sandstone. Light drab-coloured; fine-grained and schistose. Mansfield.
44. Mudstone (Metamorphosed). Dark-grey and indurated. In contact and blended with dyke stone, by which it has been partially discoloured. Joints coated with carbonate of lime. From wall of dyke, Albion Mine, Crossover, Gippsland.
45. Mudstone (Metamorphosed). Dark-blue and finely arenaceous. From wall of dyke, Albion Mine, Crossover, Gippsland.
46. Sandstone. Hard and finely micaceous, showing wavy slaty laminations. North Cohen's Mine, Walhalla.
47. Slate. Long Tunnel Extended Mine, Walhalla.
48. Indurated Sandstone (locally termed Elvan). Long Tunnel Extended, Walhalla.
49. Grit. Dark-bluish grey; very fine grained, compact, and indurated. Wood's Point.
50. Schistose Grit. Grey; fine grained, siliceous, and indurated. Wood's Point.

No. 51. Schistose Grit. Similar to foregoing, but more schistose. Wood's Point.

52. Schistose Sandstone. Light yellowish-grey, with ferruginous veins; finely micaceous. Never-mind Spur, Wood's Point.

53. Sandstone. Greyish-blue; fine grained and siliceous. Jericho.

54. Siliceous Grit. Dark-grey; dense and highly indurated. B B Creek, Jericho.

55. Slate. Greyish blue; fine grained, and shows somewhat irregular cleavage. Thomson River Copper Mine, near Walhalla.

56. Grit. Dark-grey; very fine grained, compact, siliceous, and indurated. Same locality as foregoing.

57. Limestone. Grey, crystalline. Near Tyers River, Gippsland.

58. Limestone. Dark-grey, crystalline. Near Tyers River, Gippsland.

59. Limestone. Dark-grey; compact, and intersected by veins of crystalline calcite. Near Tyers River, Gippsland.

60. Limestone. Grey, finely crystalline. Near Tyers River, Gippsland.

61. Sandstone. Light yellowish-brown; fine grained and earthy. Glenmaggie Creek, Gippsland.

62. Sandstone. Similar to foregoing, but more micaceous. Glenmaggie Creek, Gippsland.

63. Slate. Blue; somewhat earthy, but suitable for roofing purposes. Glenmaggie Creek, Gippsland.

64. Slate. Dark-blue; hard and unevenly laminated. Glenmaggie Creek, Gippsland.

65. Calcareous Schist. Light-grey and acutely corrugated. Head of Buchan River, Gippsland.

66. Limestone (Marble). Yellowish-white; finely crystalline, "sugary," somewhat slaty, and slightly stained by ferruginous infiltrations. Limestone River, head of Upper Murray.

67. Limestone. Bluish-grey and slaty. Limestone River, Upper Murray.

NOTE.—The last three specimens have been classed as Upper Silurian on the somewhat meagre palæontological evidence afforded by similar limestones occurring to the north, which partake as regards their fossils more of the character of Upper than of Lower Silurian.

68. Limestone. Grey; crystalline, with veins of calcite. Waratah Bay.

69. Limestone. Grey; crystalline, much intersected by irregular veins of calcite. Waratah Bay.

70. Limestone. Grey; fine grained, compact, and crystalline. Cooper's Creek, Thomson River.

71. Limestone. Dark bluish-grey; compact, and finely and coarsely crystalline. Cooper's Creek, Thomson River.

72. Limestone (Encrinital Marble). Compact and crystalline; dark bluish-grey, with white markings where the numerous encrinital stems have been replaced by carbonate of lime. Susceptible of high polish, and valuable as an ornamental stone. Thomson River.

73. Limestone (Encrinital Marble). Grey; partly dense and compact and partly crystalline; shows encrinital markings. Near Delatite River, six miles S.W. of Mansfield.

74. Limestone (Encrinital Marble). Similar to foregoing, and from same locality.

75. Limestone (Encrinital Marble). Similar to foregoing, but lighter-coloured and traversed by veins of calcite. Same locality.

76. Quartzose Schist. Greyish-white, with brown markings of iron; somewhat metamorphic; joints coated with pyrites. Foster.

- No. 77. Fossil Shell Impressions. Upper Silurian fossils (*Brachiopods*, &c.) in fine siliceous grit. Mount Ida Range, Heathcote.
78. Fossil Shell Impressions. Small *Brachiopods*, &c., in fine micaceous sandstone. Moonee Ponds.
79. Fossil Shell Impressions. Similar to and from same locality as foregoing.
80. Fossil Shell Impressions. *Trilobite*, *Brachiopods*, &c. Moonee Ponds.
81. Fossils (*Cephalopoda*, &c.) Moonee Ponds.
82. Fossil Shells and portion of Starfish. Moonee Ponds.
83. Fossil Shells (*Brachiopods*, &c.) in fine micaceous earthy sandstone. Botanical Gardens, Melbourne.
84. Fossil Shells (*Brachiopods*, *Corals*, &c.) in gritty sandstone. U. T. Creek, Alexandra.
85. Fossil Shells (*Corals*, &c.) in quartzite. Tangil.
86. Fine Conglomerate with imperfect fossils. From near Walhalla.
- 87-91. Fossil Shells. Lilydale.
- 92-94. Fossil Shells. Lilydale.
- 95-96. Fossil Shells, Casts, &c. Moonee Ponds.
97. Fossil Shells, Casts, &c. Moonee Ponds.
98. Fossil Shells, Casts, &c. Moonee Ponds.

NOTE.—The limestones of which Nos. 70 to 75 are specimens were until very recently regarded as Devonian, because they occur as patches, apparently vestiges of more extensive deposits, occupying deep clefts or "pockets" in the Silurian Slates and Sandstones. The fossils found in them were not regarded as sufficiently distinctive to allow of their determination as Upper Silurian or Lower Devonian.

Subsequent investigations have, however, resulted in the discovery that these patches are really portions of lenticular beds interstratified with the ordinary rocks, and are probably due to colonies of marine life which were distributed over the palæozoic sea-beds, and caused the segregation of lime in certain localities while ordinary sedimentary deposits were proceeding in the surrounding areas not so occupied.

UPPER PALÆOZOIC ROCKS.

Division No. 1.

DEVONIAN (?) (MIDDLE OR LOWER).

(Indicated by blue colour on the Geological Sketch Map.)

These rocks consist of limestones, beneath which occur, at Buchan, conglomerates and breccias made up of aqueously-arranged fragments of igneous rocks. The limestones occur in isolated patches, filling hollows in older rocks, and appear to have been once more widely spread than now, a great portion having been removed by denudation.

The limestones of Buchan and the surrounding localities have been identified on the evidence of their fossils as of Middle Devonian age.

- No. 1. Limestone. Dark bluish-grey; partly dense and compact and partly fine crystalline. Buchan.
2. Limestone. Similar to foregoing. Contains numerous fossil shell impressions. Buchan.

3. Ten specimens of Limestone containing *Spirifera levicostata*, &c., the characteristic fossils of the Middle Devonian limestones of Buchan, Bindi, and other localities in the eastern part of Victoria.

Division No. 2.

UPPER DEVONIAN ROCKS AND OTHERS PROVISIONALLY CLASSED WITH THEM
UNDER THE GENERAL HEADING OF UPPER PALÆOZOIC.

(Indicated by light burnt umber colour on the Geological Sketch Map.)

NOTE.—In the rocks of Iguana and Freestone Creeks in Gippsland occur fossil flora which have been recognized by Professor McCoy as indicative of Upper Devonian. These rocks are found to be stratigraphically identical and continuous with the great mass of Upper Palæozoic rocks lying between the Macalister and Wonnangatta Rivers, and known as the “Avon sandstones.” In the upper beds of the latter, however, have been found specimens of *Lepidodendron*, considered by Professor McCoy as indicative of Lower Carboniferous age.

The sandstones of the Grampians, in the Western District, have not as yet yielded any palæontological evidence, but on account of their general lithological resemblance and stratigraphical position have also been provisionally classed under the general term of “Upper Palæozoic.”

For the igneous rocks or “contemporaneous traps” of this group see Nos. 31 to 51 inclusive, Division No. 2, Older Igneous or Plutonic Rocks.

- No. 4. Sandstone (Freestone). Light pinkish-brown; fine grained. Useful as a building stone. Hall's Gap, Grampians.
5. Sandstone (Freestone). White and fine grained; rather soft when freshly broken, but receives a harder siliceous crust when exposed to the atmosphere. Valuable as a building stone. Mount Difficult, Grampians.
6. Sandstone (Freestone). Pinkish cream-coloured; fine grained and somewhat felspathic. Useful as a building stone. Mount Sturgeon, Grampians.
7. Sandstone (Freestone). Light pinkish-brown; fine grained and somewhat felspathic. Rather soft and friable, but useful for many building purposes. Mount William, Grampians.
8. Sandstone (Freestone). Pinkish cream-coloured; fine grained and siliceous. Makes a good building stone. Mount Abrupt, Grampians.
9. Grit. Grey and dull-red; very hard, compact, and siliceous. Waterworks Tunnel, Grampians.
10. Quartzite (Quartz Rock). Greyish-white, and of somewhat “sugary” texture. Forms a layer interbedded with sandstones. Hall's Gap, Grampians.
11. Freestone. Light-purple; fine grained and somewhat earthy. Easily worked and useful for building purposes. Maindample Park, Mansfield.
12. Sandstone. White; medium grained, gritty, and somewhat felspathic; contains a few embedded fragments of some slaty rock. Nicholson's Creek, Upper Maffra, Gippsland.
13. Conglomerate. Grey to yellowish-brown; siliceous base, enclosing pebbles of quartz, quartzite, and indurated sandstone, with coarse quartz sand. Avon River, Gippsland.

- No. 14. Conglomerate. Grey, and similar to the foregoing, but finer. Avon River, Gippsland.
15. Conglomerate. Grey, and somewhat earthy; in parts a coarse sandstone. Avon River.
16. Conglomerate. Purple; highly siliceous base, enclosing pebbles of indurated sandstone and shale, with coarse quartz sand. Avon River, Gippsland.
17. Conglomeratic Sandstone. Greyish-yellow; composed of small pebbles and grains of quartz and quartzite, with numerous grains of white felspathic matter in a siliceous base. Avon River, Gippsland.
18. Sandstone. Greenish-grey; medium grained; somewhat earthy and finely micaceous. Avon River, Gippsland.
19. Sandstone. Purplish-grey; fine grained and compact. Avon River, Gippsland.
20. Sandstone. Dark-red and fine grained; compact and somewhat earthy. Avon River.
21. Sandstone. Greyish-white; medium grained and gritty; makes a good durable building stone, and is much locally used for that purpose. Freestone Creek, Gippsland.
22. Mudstone. Greenish-grey; soft and rubbly. Occurs as a layer below the foregoing. Freestone Creek.
23. Gritty Sandstone. Brown and white; hard, medium grained, and finely micaceous on stratification planes. Flaggy Creek, Mitchell River, Gippsland.
24. Sandstone. Brown; medium grained, schistose, and ferruginous; micaceous on stratification planes. Iguana Creek, Mitchell River, Gippsland.
25. Sandstone. Yellowish-brown; fine grained and somewhat earthy. Iguana Creek, Mitchell River, Gippsland.
26. Sandstone. Purple; medium grained, schistose, somewhat earthy, and micaceous. Iguana Creek, Mitchell River, Gippsland.
27. Mudstone. Purple; fine, earthy, rubbly, and indurated. Iguana Creek, Mitchell River, Gippsland.
28. Specimens of Fossil Plant Impressions in indurated micaceous shale. Iguana Creek, Mitchell River, Gippsland.
29. Sandstone, containing remains of Fossil-fish (*Gyrocanthus*), Mansfield.
30. Sandstone, containing remains of Fossil-fish (*Gyrocanthus*), Mansfield.
31. Sandstone, containing impressions of scales of Fossil-fish (*Gyrocanthus*), Mansfield.

MESOZOIC ROCKS AND COALS.

(Indicated by light burnt Sienna colour on the Geological Sketch Map.)

The areas occupied by these rocks are principally those forming the two great southern projections of Victoria, lying to the east and to the west respectively of the meridian of Port Phillip. The eastern Mesozoic area includes a small tract on the north of the La Trobe Valley in Gippsland, and the whole of the South Gippsland and Western Port Ranges, with the exception of the granite of Wilson's Promontory and the Silurian of Cape Liptrap and Foster. The western Mesozoic area is that extending from Geelong westward to the Gellibrand River, lying to the south of the road from Geelong to Camperdown, and including the Cape Otway

Ranges. A third Mesozoic area borders the Wannon River, near its confluence with the Glenelg in the Western District, and the rocks are probably continuous with those of the Cape Otway Ranges, underneath the Volcanic and Tertiary formations which occupy the intervening tracts. A small area occupied by Mesozoic rocks occurs near Bacchus Marsh. The rocks consist of conglomerates, breccias, sandstones, and shales of varying colour and hardness, and with them in several localities are interbedded seams of coal of good quality but small size, which, however, may eventually be profitably worked. Only two specimens of fossil fauna have yet been found; both freshwater molluscs. The fossil flora are of various species, and on their evidence the formation has been provisionally referred to the Oolitic division of the Mesozoic group. The fossil plant impressions from the Bacchus Marsh beds are considered by Professor McCoy to indicate a relation to the Talchir beds of the Indian coal-fields.

- No. 1. Sandstone. Greyish-white; soft and earthy, with indistinct plant impressions. Coleraine.
2. Sandstone. Full of indistinct plant impressions. Coleraine.
3. Sandstone. Greenish-grey; fine grained, soft and earthy. Cape Otway.
4. Sandstone. Yellowish-brown; hard, fine grained, and gritty, though somewhat earthy; of flaggy structure. Cape Otway.
5. Sandstone. Light-brown; fine grained, somewhat earthy and finely micaceous; of medium quality as a building stone, but liable to wear when exposed to the atmosphere. The Treasury building, Melbourne, is constructed of this stone. Pentland Hills, near Bacchus Marsh.
6. Breccia-Conglomerate. Composed of rounded and angular pebbles and grains of indurated shale, sandstone, and quartz. Western Port.
7. Grit. Grey; hard, medium grained, and siliceous. Makes a durable building stone. Western Port.
8. Sandstone. Grey; gritty and medium grained; contains numerous indistinct plant impressions. Corinella, Western Port.
9. Breccia-Conglomerate. Greenish-grey; a fine grained sandy base, enclosing angular and rounded fragments of indurated shale. Near Kilcunda, Western Port.
10. Breccia-Conglomerate. A rolled fragment of rock, similar to foregoing and from same locality.
11. Sandstone-Breccia. Grey; fine grained, and enclosing angular fragments of hard shale and small patches of coal. Same locality.
12. Sandstone-Breccia. Similar to foregoing, and from same locality.
13. Sandstone-Breccia. Similar to foregoing, and from same locality.
14. Sandstone. Greenish-grey; contains numerous broken plant impressions. Same locality.
15. Sandstone. Similar to foregoing. From a depth of 250. Walsh and Stevenson's shaft, near Kilcunda.
16. Sandstone. Greenish-grey; fine grained, and traversed by veins of calcite. Kilcunda.
17. Sandstone. Yellowish-brown; earthy and somewhat decomposed. Top coal measures, Kilcunda.
18. Sandstone. Grey; gritty; contains small indistinct plant impressions. From below the foregoing, Kilcunda.
19. Shale. Full of fossil coal plants. Kilcunda.
20. Shale. Similar to foregoing, and from same locality.
21. Sandstone. Grey; fine grained and earthy; exhibits the results of weathering action. From coast, Kilcunda.
22. Sandstone. An indurated nodule, such as frequently occur embedded in the ordinary sandstone. Kilcunda.

- No. 23. Indurated Shale. In the form of a nodule, and altered by burning of adjacent coal seam. Kilcunda.
24. Shale. Altered by burning of adjacent coal seam. Kilcunda.
25. Sandy Shale. Gritty and fissile, alternating thin white and black laminae, the colour of the latter due to the presence of much carbonaceous matter. Cape Paterson.
26. Sandstone. Dark-grey; fine grained and somewhat gritty; much jointed; joints coated with calcareous matter. From roof of coal seam, Foster.
27. Sandstone. Grey; fine grained and gritty. From near Turton's Creek.
28. Clay. Light-grey; fine grained and tenacious; valuable for many purposes in the manufacture of earthenware. From floor of coal seam, Moe.
29. Sandstone. Somewhat felspathic. Moe Coal Mine.
30. Sandstone. Finely gritty. Moe Coal Mine.
31. Sandstone. Gritty; contains obscure plant impressions. Moe Coal Mine.
32. Sandstone. Fine grained and highly calcareous. Moe Coal Mine.
33. Carbonaceous Shale. Moe Coal Mine.
34. Sandstone. Light greenish-grey; gritty, but somewhat earthy. Rintoul's Creek, north from Traralgon.
35. Sandstone, with veins of calcite. Cape Patterson.
36. Sandstone. Similar to above. Cape Otway.
37. Carbonaceous Shale. Berry's Creek, Mirboo.
38. Sandstone. Calcareous. Stockyard Creek.
39. Shale. Carbonaceous. Strzelecki Ranges.
40. Sandstone. Worn by sea action. Cape Otway.
41. Sandstone. Rintoul's Creek.
42. Sandstone. Similar to above. Rintoul's Creek.
43. Sandy Rock. Casterton.
44. Conglomerate. Sandstone. Blackwood.
45. Grey Shale, with plant impressions. Cape Otway.
46. Fossil Plants (*Tæniopteris*). Cape Otway.
47. Fossil Plants (*Tæniopteris*). Same locality.
48. Ferruginous Shale. Similar to above. Glenelg River.
49. Sandy Micaceous Limestone, with plant impressions. Glenelg River.
50. Decomposed Brecciated Shale, with plant impressions. Glenelg River.
51. Sandstone. Darlinmurla.
52. Calcareous Shale, with plant impressions. Wannon River.
53. Calcareous Shale. Similar to above. Sandford.
54. Sandy Micaceous Limestone, with plant impressions. Sandford.
55. Sandy Limestone. Similar to above. Sandford.
56. Fossil Plant Impressions (*Sphenopteris*). Strzelecki Ranges.
57. Fossil Plant Impressions (*Sphenopteris*). Western Port.
58. Fossil Plant Impressions. Apollo Bay.
59. Fossil Plant Impressions. Apollo Bay.
60. Fossil Plant Impressions. Bacchus Marsh.
61. Sandy Shale, containing mineral charcoal. Coleraine.
62. Fossil Plant Impressions. Coleraine.
63. Fossil Plant Impressions. Gippsland.
64. Carbonaceous Shale, with plant impressions. Cape Patterson.
65. Sandstone, with plant impressions and calcareous matter. Cape Patterson.
66. Fossil Wood (Silicified). Kilcunda.
67. Fossil Plant Impressions. Apollo Bay.
68. Bituminous Shale. Rintoul's Creek.
69. Carbonaceous Shale. Rintoul's Creek.

- No. 70. Lignite. Latrobe River.
 71. Lignite. Lal Lal.
 72. Lignite. Lal Lal.
 73. Lignite. Apollo Bay.
 74. Coal. Of good quality; from a seam 2 ft. 6 in. in thickness. Narracan Valley.
 75. Coal. Similar to above. Five inches in thickness. From diamond drill core, same locality.
 76. Coal. Darnum.
 77. Coal. From 10 in. seam, Moe.
 78. Coal. Powlett River.
 79. Coal. Good quality; seam 2 ft. 6 in. in thickness. Strzelecki Ranges.
 80. Coal. Soft and friable; yields good coke. Hazelwood.
 81. Coal. Of good quality. From a seam 2 ft. 6 in. in thickness, similar to No. 74, Moe.
 82. Coal. Of excellent quality. From a seam 2 ft. in thickness, Kilcunda.
 83. Coal. Coleraine.
 84. Coal. Of good quality. Allambee.
 85. Coal. Of inferior quality. Same locality.
 86. Coal. Boolara.
 87. Coal. Of good quality. From a seam 4 ft. 8 in. in thickness, Mirboo, Gippsland.
 88. Coal. Apollo Bay.
 89. Earthy Ironstone, with plant impressions. Roseneath.
 90. Shale, containing plant impressions. Western Port.
 91. Shale. Kilcunda.

TERTIARY ROCKS, Etc.

A very extensive area in Victoria is occupied by formations of the Tertiary and Post Tertiary age, consisting of limestones, sandstones, conglomerates, quartzites, clays, and sands.

The Lower Tertiary (Oligocene) beds have only as yet been identified at a few places along the coast line, where they occur as grey clays containing *septaria*.

The Middle Tertiary (Miocene) marine beds occur exposed along the coast line for considerable distances, principally from Port Phillip to the Glenelg, and underlie a great extent of the low-lying Upper Tertiary and Volcanic tracts to the north and south of the Main Dividing Range. They consist principally of limestones and calcareous sandy beds, but do not occur beyond an elevation of 700 feet above the sea.

Middle Tertiary deposits due to fluvial or lacustrine origin, consisting of siliceous and ferruginous conglomerates, quartzites, clays, sandy beds, and occasional lignites, are met with up to elevations of 5000 feet above the sea; among these are some auriferous gravels or leads.

The Marine Upper Tertiary beds consist of freshwater limestones, clays, sands, gravels, and conglomerates, as extensive deposits or patches flanking the older rocks below a contour line of 1000 feet above the sea. The gravels, &c., due to fluvial action are met with at all elevations from sea level upwards. Among these are the principal auriferous gravels or leads.

Post tertiary deposits of clay, earth, sand, and gravel occur in every river, creek, or gully, and constitute the surface formation of very extensive low-lying level areas in different parts of the colony.

LOWER TERTIARY (OLIGOCENE.)

Indicated by emerald-green colour on the Geological Sketch Map.)

- No. 1. Grey Clay, containing *Echini*, spines and comminuted fragments of shells. Coast near Princetown, west of the Gellibrand River.
- 2-3. Sandy Calcareous deposit, composed principally of more or less fragmentary shells and spines. Same locality.
- 4-7. Large Fossil Shells (*Cypræa*). One of these is covered with impressions of small shells of another genus (*Ostrea*). Same locality.
- 8-31. Fossils—*Waldhemia*, *Aturia*, *Volutes*, *Limopsis*, *Cerethium*, *Trigonia*, *Cuculæa*, *Pectens*, *Spondyle*, *Cypræa*, *Echini*, spines, &c. From Muddy Creek, near Hamilton, and other places.

MIDDLE TERTIARY (MIOCENE).

(Indicated by yellowish-drab colour on the Geological Sketch Map.)

- No. 1. Limestone. Grey; compact and somewhat siliceous. Glenelg River, north from Casterton.
2. Coralline Limestone. Yellowish, and of loose texture; composed of comminuted fragments of shell and coral, with a mixture of coarse quartz sand. Cape Otway.
3. Limestone (Marble). Yellowish-brown, in various shades; fine, dense and compact, with small veins and concretions of calcite; takes a good polish, and useful for ornamental purposes. Geelong.
4. Limestone. Yellowish-brown; partly compact and partly porous; largely composed of fragments of shell and coral. Batesford, Geelong.
5. Marble (resembles Sienna Marble). Partly compact and partly containing cavities lined with carbonate of lime. Geelong.
6. Limestone (Shell Marble). Yellowish-brown, and full of casts of fossil shells. Maude.
7. Limestone. Light-greyish; compact, and finely crystalline-granular; very slightly ferruginous. Longford, near Sale.
8. Limestone. Greyish-white; fine, compact, and fossiliferous. Longford, near Sale.
9. Limestone. Yellowish-brown; compact, and containing crystals of calcite. Picnic Point, near Bairnsdale.
10. Limestone. Dark-grey; compact and fine grained. From beneath Upper Tertiary deposits. Portion of core brought up by boring machine from a depth of 234 feet near Donald.
11. Calcareous Sandy Nodule. Brown, with grey marl attached, containing fragments of fine shells. Same locality.
12. Limestone. Murray Plains.
13. Limestone. Warrnambool.
14. Limestone. Lethbridge.
15. Sand-Rock (Calcareous). Lethbridge.
16. Limestone (Impure). Geelong.
17. Limestone (Coralline). Geelong.
18. Limestone (Coralline). Geelong, Waurin Ponds.
19. Limestone (Coralline). Gambier.
20. Quartzite. Greyish-white; exceedingly hard, dense, and fine grained; composed of minute granules of quartz in a siliceous base. Lilydale.
21. Quartzite. Yellowish-brown. Similar to foregoing. Hoddle's Creek.

- No. 22. Quartzite. Greyish-white. Similar to foregoing. Crossover.
23. Quartzite. Greyish-white and yellowish brown; partly fine grained and partly impalpable, approaching chert in character. Crossover.
24. Siliceous Conglomerate. Greyish-white; composed of granules and pebbles of quartz set in and partly blended with a siliceous matrix. Tangil.
25. Siliceous Conglomerate. Similar to foregoing, but with larger and more distinct rounded quartz pebbles. Rintoul's Creek.
26. Quartzite. Greyish-white; somewhat sugary texture. Rintoul's Creek.
27. Quartzite. Greyish-white; very dense and fine grained. Seaton.
28. Quartzite. Greyish-white; very hard and dense, fine grained to impalpable. Glenmaggie.
29. Quartzite. From deposit beneath Older Volcanic rocks. Narrican Valley.
30. Quartzite. Occurring between Silurian and Older Volcanic rocks. From ranges between Aberfeldy and Thomson Rivers.
31. Ferruginous Sandy Grit. Brown; coarse and porous; contains casts of fossils. Welcome Rush, near Stawell.
32. Ferruginous Sandy Grit. Brown and in parts earthy; rich in casts of fossil shells. Same locality.
33. Earthy Ferruginous Sandstone. Same locality.
34. Flint Rock. Broadford.
35. Sand Rock. Light brownish pink, earthy. Rintoul's Creek.
36. Indurated Clay. Yellowish; hard and compact; apparently clay indurated by infiltration of siliceous matter. Rintoul's Creek.
37. Lignite. Black; compact, and of very pure quality. From a seam 10 feet thick below Older Volcanic, M'Kirley's Creek, Gippsland.
38. Sandy Clay, containing fragments of lignite. Crossover.
39. Carbonaceous Clay, with worm marks. Frankston.

MIocene FOSSILS.

40. Fossil shell (*Cardium*). From hard limestone. Longford, near Sale.
41. Cast of interior of Fossil shell (*Cardium*). Longford, near Sale.
42. Cast of interior of Fossil shell (*Cypræa*). Longford, near Sale.
- 42A. Fossil shell (*Cypræa*). Retreat Creek, east of Loutitt Bay.
43. Fossil (*Clypeaster*). Red Bluff, near Gippsland Lakes Entrance.
44. Fossil (*Clypeaster*). Near Bairnsdale.
45. Fossil shell (*Pecten*). Near Bairnsdale.
46. Fossil. Warrnambool.
47. Fossil shells. Warrnambool.
48. Fossil shell. Warrnambool.
49. Fossil shell in sandstone. Gambier.
50. Limestone, containing fossils. Geelong.
51. Fossil, Shark's Teeth (*Carcharodon*). Mordialloc.
52. Fossil shells in grey clay. Muddy Creek.
53. Fossil shells. Same locality.
- 54-56. Fossil shells, &c. Dartmoor.
- 57-61. Fossil shells. Same locality.
62. Fossil shells (*Microscopic*). Shelford.
- 63-66. Fossil shells. Bairnsdale.
- 67-80. Fossil shells. Dartmoor.
81. Fossil leaves (*Laurus Werribeensis*) in brown ferruginous sandstone. Lyall's Creek, near Bacchus Marsh.
82. Fossil leaves. Similar to foregoing, and from same locality.

No. 83. Fossil leaves. Darlinmurla, Gippsland.

84. Fossil leaves. Same locality.

UPPER TERTIARY AND POST TERTIARY.

(Indicated by pale-olive colour on the Geological Sketch Map.)

- No. 1. Sandy Ferruginous Rock. Brown; friable, and composed of coarse angular quartz-sand in a ferruginous earthy matrix. Glenelg River, near Casterton.
2. Sandy Ferruginous Rock. Similar to foregoing, but fine grained. Redruth on the Wannon.
3. Quartzite. White, with yellow and reddish markings; fine grained, compact, but somewhat earthy. East of Mount Mackersey.
4. Sandstone. Light-brown; medium grained; somewhat soft and friable; composed of blown sand and minute fragments of shells consolidated by calcareous matter. Warrnambool.
5. Limestone. White; very soft and friable. Warrnambool.
6. Cement. White and compact; composed of small angular and partly rounded grains of quartz in an indurated felspathic matrix. Stawell.
7. Quartz-Conglomerate. Rounded and sub-angular fragments of quartz, intermixed with sand, and cemented by ferruginous clay. Stawell.
8. Quartz-Conglomerate. Similar to foregoing. Callawadda, north from Stawell.
9. Quartz-Conglomerate. Similar to foregoing, but finer and less ferruginous. Same locality.
10. Sandstone. Light-brown and red; earthy, ferruginous, and friable, contains impressions of fossil stems. North of Stawell.
11. Sandstone. Brown to nearly white, in alternating and imperceptibly blending bands; fine grained, soft, and friable. Erskine River, Loutitt Bay.
12. Quartzose Grit. Pinkish-white; hard, fine grained; slightly porous and finely micaceous. Airey's Inlet.
13. Conglomerate. Composed of pisolitic ironstone nodules. From surface overlying Volcanic. Ballyrogan.
14. Conglomerate (Pudding Stone). Large and small well-rounded pebbles and grains of quartz, strongly cemented by oxide of iron. Colac.
15. Breccia. Large and small angular and sub-angular fragments of white quartz, strongly cemented with manganiferous iron. Clunes.
16. Breccia-Conglomerate. Similar to foregoing, but with more rounded quartz pebbles. Clunes.
17. Breccia. Large and small angular quartz fragments, cemented with siliceous and ferruginous matter. Clunes.
18. Breccia. Small angular quartz fragments, resembling granitic detritus; cemented by ferruginous matter. Clunes.
19. Conglomerate. Pisolitic ironstone nodules and sand, cemented by ferruginous matter. Clunes.
20. Conglomerate. Similar to foregoing. Majorca.
21. Ferruginous Conglomerate. Talbot.
22. Ferruginous Conglomerate. Majorca.
23. Quartzite. A white, compact, siliceous rock, with felspathic and ferruginous matter in cracks and cavities. Clunes.
24. Limestone. Occurs in small patches near the surface. Talbot.
25. Infusorial Earth. Occurs in a bed below basalt. Tullaroop Creek.

- No. 26. Clay. Greenish-brown ; fine and tenacious ; brought up by water-boring machine from a depth of 103 feet. Terricks Plains, near Durham Ox.
27. Ironstone-Breccia. Brown ; partly rounded and angular fragments of quartz and quartz-sand, cemented by ferruginous matter. Glengower.
28. Ironstone-Conglomerate. Yellow and brown ; large and small rounded fragments of quartz and sandstone, with coarse sand, cemented by ferruginous matter. Steiglitz.
29. Fossil leaves (*Eucalyptus*) in clay shale. Daylesford.
30. Clay Shale. Grey ; laminar and finely arenaceous ; contains indistinct fossil leaf impressions. Daylesford.
31. Clay. Light-grey ; fine, and imperfectly laminar. Malmsbury Reservoir.
32. Breccia. Yellow and brown ; angular fragments of quartz and quartz-sand, cemented by siliceous and ferruginous matter. Bullock Creek, near Sandhurst.
33. Clay. From 75 feet below surface. Britt's Freehold Mine. Huntly.
34. Sand Rock. Composed of blown sand intermixed with large and small fragments of recent shells bound together by calcareous matter. Mud Island.
35. Ferruginous Sandstone. Fine grained, gritty, and friable. Royal Park, near Melbourne.
36. Ferruginous Sandstone. Similar to foregoing, and containing fossils. Royal Park, near Melbourne.
37. Ferruginous Sandstone. Similar to foregoing, with casts of fossil shells. Brighton Beach.
38. Ferruginous Grit. Fossiliferous. Cheltenham.
39. Infusorial Earth. Somewhat impure and intermixed with vegetable matter. West Melbourne Swamp.
40. Ferruginous Conglomerate. From south of Kilmore.
41. Ferruginous Sandstone. Very hard and compact. Glenmaggie.
42. Fossil shell. (*Cerithium Flemingtonensis*), in coarse sandy ironstone. Flemington.
43. Coarse Felspathic Grit. Kirkella.
44. Cement of Pisolitic Nodules. Majorca.
45. Volcanic Ferruginous Conglomerate. Ascot.
46. Ferruginous Conglomerate, with fossil wood. Dargo.
47. Earthy Ferruginous Conglomerate. Learmonth.
48. Conglomerate, of volcanic and granitic detritus. Near Learmonth.
49. Conglomerate; Pisolitic. Near Learmonth.
50. Ferruginous Cement. Near Learmonth.
51. Ferruginous Grit. Near Learmonth.
52. Coarse Grit. Cemented by carbonate of lime. Lake Learmonth.
53. Grit with granitic detritus and wood. Webster's Hill, Learmonth.
54. Ferruginous Cement. Castlemaine.
55. Same as above; hollows filled with white clay. Malmsbury.
56. Conglomerate. Cape Otway.
57. Same as above ; 10 ft. above sea level. Same locality.
58. Indurated Clay Grit, overlying granite. Stawell.
59. Cement. Stawell.
60. Cemented Boulder. Stawell.
61. Floating Rock, resting on bottom. Stawell.
62. Pisolitic Conglomerate. Stawell.
63. Pisolitic and Ferruginous Grit, enclosing fossil wood. Stawell.
64. Breccia, composed of fragments of silurian shale, cemented with ferruginous and manganiferous matter. Bare Hills.
65. Ferruginous Grit. Cape Otway.

- o. 66. Ferruginous Conglomerate (cement). Tangil River.
67. Cement. Wimmera.
68. Ferruginous Conglomerate (cement). Tarilta.
69. Coarse Conglomerate. Thomastown.
70. Drift, resting on granite. Ararat.
71. Ferruginous Sandstone. Hobson's Bay.
72. Brecciated Grit, fragments cemented by iridescent oxide of iron. Thompson's River.
73. Clay, sandy and micaceous. Dunmunkle.
74. Clay, same as above, 98 ft. from surface. Dunmunkle.
75. Sandstone Concretion. N.W. of Stawell.
76. Limestone. Amherst.
77. Limestone. Amherst.
78. Limestone. Underlying this was found lower jaw of *Phascolumys Pliocennis* (Wombat). Bung Bong.
79. Calcareous Concretions. Ararat.
80. Concretions (sandy ironstone and limestone). Dunmunkle.
81. Pisolitic Concretions. Clunes.
82. Boulders, purple, sandy, micaceous and carbonaceous, in drift. Clunes.
83. Casts of Wood. Ballark.
84. Sand Rock. Darlinmurla.
85. Fossil Wood, original material replaced by ferruginous matter.
86. Fossil leaves (*Eucalyptus Pluti*, &c.) Daylesford.
87. Fossil leaves. Same locality.
88. Fossil leaves (*Eucalyptus* and *Pteris*). Daylesford.
89. Fossil leaf. Same locality.
90. Fossil Skull of extinct Wombat (*Phascolumys Pliocennis*). Bacchus Marsh.
91. Fossil Bone. Brighton Beach.

SPECIMENS OF SOME OF THE FOSSIL FRUIT FOUND IN THE GRAVELS OF AURIFEROUS LEADS AT EL DORADO, NEAR BEECHWORTH, IN THE BALLARAT DISTRICT, AND OTHER PLACES.

- No. 1. *Spondylostrobos Smythii*. El Dorado, near Beechworth.
2. *Plesiocarpis prisca*. Haddon, near Ballarat, and Hoddle's Creek, Upper Yarra.
3. *Celyphina McCoyi*. El Dorado, near Beechworth.
4. *Phymatocaryon Mackayi*. Haddon.
5. *Trematocaryon McLellani*. Haddon.
6. *Penteune Clarkei*. El Dorado.
7. *Celyphina McCoyi*. Tangil.
8. *Odontocaryon Macgregorii*. El Dorado.
9. *Rhytidotheca Lynchii*. Haddon.
10. *Phymatocaryon Mackayi*. Guildford.
11. *Pleioclinis Couchmanii*. Haddon.
12. Fossil seeds. Lal Lal.
13. Honeysuckle cones. El Dorado.
14. Fossil fruit. Lignite and Resin. From 400 to 426 ft. deep. Mt. Wycheproof.
15. *Xylocaryon Lockii*. El Dorado.
16. *Penteune trachyclinis*. El Dorado.
17. *Conchotheca rotundata*. Haddon.
18. *Xylocaryon Lockii*. Haddon.

- No. 19. *Celyphina McCoyi*. Tangil.
 20. *Odontocaryon Macgregorii*. El Dorado.
 21. *Trematocaryon McLellani*. El Dorado.
 22. *Pentacene Clarkei*. Haddon.
 23. *Spondylostrobus Smythii*. Haddon.
 24. *Phymatocaryon Mackai*. Eldorado and Haddon.

SILICEOUS MINERALS.

- No. 1. Quartz Crystals, with small crystals of dolomite. Irregularly grouped and projecting from a mass of translucent amorphous quartz. New Chum Reef, Sandhurst.
 2. Group of Quartz Crystals, with crystals of dolomite in the interstices between and coating the faces of the quartz crystals. New Chum Reef, Sandhurst.
 3. Quartz Crystals (2 specimens). Lightly coated in patches with fine iron pyrites. New Chum Reef, Sandhurst.
 4. Quartz Crystals (2 specimens). 170 feet level, Rowe Brothers' Mine, Fryerstown.
 5. Quartz Crystals, with attached group of calcite crystals. New Chum Reef, Sandhurst.
 6. Group of Quartz Crystals. New Chum Reef, Sandhurst.
 7. Quartz Crystals (2 specimens). New Chum Reef, Sandhurst.
 8. Quartz Crystal. Burrowes' Claim, Sandhurst.
 9. Group of medium-sized Quartz Crystals. New Chum Reef, Sandhurst.
 10. Quartz Crystals (2 specimens). Fryerstown.
 11-12. Large Quartz Crystals. Made up of a number of smaller ones, the apices of which are apparent at the extremities of the former. Fryerstown.
 13-17. Quartz Crystals. Fryerstown.
 18-19. Quartz Crystals. Burdett-Coutts Company, Fryerstown.
 20. Group of Quartz Crystals. Ferron's Reef, Fryerstown.
 21. Group of Quartz Crystals. Fryerstown.
 22. Group of Quartz Crystals. 170 feet level, Duke of Cornwall Mine, Fryerstown.
 23. Quartz Crystal. Transparent externally, with opaque green centre. Clarke's Reef, Fryerstown.
 24. Group of Quartz Crystals. Stained with iron. Heron's Reef, Fryerstown.
 25-26. Smoky Quartz Crystals (2 specimens). El Dorado, near Beechworth.
 27. Group of small Quartz Crystals. United Consols Mine, Chiltern.
 28. Quartz Crystal. Sandhurst.
 29. Quartz Crystal. Fryerstown.
 30-31. Quartz Crystals. Sandhurst.
 32. Smoky Quartz Crystal. El Dorado.
 33-35. Water-worn Translucent Quartz Pebble (Rock Crystal). Alexandra. Pebbles of Transparent, Colourless, or Light-amber
 36-39. Quartz (Rock Crystal). Diedrich's Sluicing Claim, between Woolshed and El Dorado, near Beechworth.
 40. Smoky Quartz Crystal, water-worn. Beechworth.
 41-42. Quartz Pebbles. Berwick.
 43. Common Opal. Gelantipy-road, Gippsland.
 44-45. Common Opal; brown (2 specimens). Gelantipy-road, Gippsland.
 46. Liver Opal. Gelantipy-road, Gippsland.
 47. Common Opal. Maldon.
 48. Opal; apparently opalised infusorial earth. Tullaroop Creek.

- No. 49. Opal. Tullaroop Creek.
 50. Chloropal. Sunbury.
 51. Common Opal. Woodend.
 52. Common Opal. Woodend.
 53. Wood Opal. Gippsland.
 54. Common Opal. Gelantipy-road, Gippsland.
 55. Silicified Fossil Wood. Glenmaggie.
 56. Silicified Fossil Wood. Red Hill, near Buln Buln.
 57. Partly Silicified Fossil Wood. Stockyard Creek.
 58. Opalised Fossil Wood. Bacchus Marsh.
 59. Silicified Fossil Wood (2 specimens). Glenmore Ranges, Buchan
 60. Silicified Wood. Traralgon.
 61. Common Opal. Mount Duneed, near Geelong.
 62. Chalcedonic Quartz. Turton's Creek.
 63. Corundum Pebbles. Chiltern.
 64. Chalcedony. Waratah Bay.
 65. Chalcedony (2 specimens). Phillip Island.
 66. Chalcedony (Pseudo Crystals). Beechworth.
 67. Enhydrous or Chalcedonic Water-stones. Beechworth.
 68. Flint. Western Port.
 69. Flint. Coated with carbonate of lime. Belfast Bay.
 70. Semi-Opal. In infusorial earth. Amherst.
 71. Cherty Quartzite. Approaching flint in character. From vein in granite, Beechworth.
 72. Ordinary Quartz. White and amorphous; free from other minerals. Garden Gully Reef, Sandhurst.
 73. Agate Pebble. Beechworth.
 74. Jasper. Berwick.
 75. Jasper Breccia. Heathcote.
 76. Jasperoid Rock. Heathcote.
 77. Jasperoid Pebble. Turton's Creek.
 78. Jasperoid Pebble. Turton's Creek.
 79. Jasper. Gippsland.
 80. Jasper. South Gippsland.
 81. Jasperoid Rock. Gippsland.
 82. Quartzose Pebble. Shakespeare Creek.
 83. Jasper Pebbles. Strezlecki Ranges.
 84. Siliceous Geode. Tabberabbera.
 85. Jasper Pebbles. Gippsland.
 86. Jasper. Howqua River.
 87. Jasper. Loyola.
 88-90. Pebbles of Agate (3 specimens), showing irregularly concentric structure. Woolshed Creek, Beechworth.
 91. Pebbles of Agate. Beechworth.
 92-95. Pebbles of Agate. Beechworth.
 96-97. Chalcedony Geodes (2 specimens), one of which has been cut and polished to show internal structure. Moroka Valley, Gippsland.
 98. Specimen of Agate. Cut and polished, showing beautifully marked concretionary structure. Beechworth.
 (Presented by Mr. D. Fletcher.)
 99. Pebbles of Agate. Cape Otway.
 100. Chalcedony Geode, showing highly concentric structure, in crystalline quartz. Yandoit.
 101. Agates. Gippsland.
 102. Agates. Scotty's Creek.
 103. Chalcedony Geodes. Gippsland.
 104-106. Jasper Pebbles.
 107. Fossil Wood (Silicified). Stockyard Creek.
 108. Fossil Wood (Silicified). Daylesford.

- No. 109-111. Jasper Pebbles. Cape Otway.
 112-114. Jasper Pebbles. Gellibrand River.
 115-118. Jasper Pebbles. Gellibrand River.
 119. Basanite (Lydian Stone). El Dorado.
 120. Barkylite (Corundum). Chiltern.
 121. Amethystine Quartz Pebbles. Beechworth.
 122. Amethystine Quartz Crystals. Mt. Greenock.

ALUMINOUS, MAGNESIAN, CALCAREOUS, &C., MINERALS.

- Topaz. Mansfield.
 Gem Sand. Blackwood.
 Gem Sand. Daylesford.
 Garnetiferous Sand. Wilson's Promontory.
 Gem Sand. Zircon, Pleonaste and Sapphire. Ballarat.
 Gem Sands. Fine Red Garnets, Yellow Crystalline Phosphate of
 of Cerium, Zircons, and Quartz. Bethanga.
 Gem Sands. Zircons, Pleonaste, &c.
 Gem Sands. Topaz, Zircon, Tourmaline, &c. Daylesford.
 Gem Sands. Topaz, Zircon, Tourmaline, &c. Jinderick.
 Gem Sands. Topaz, Zircon, Tourmaline, &c. Mansfield.
 Tourmaline. Beechworth.
- No. 1. Orthoclase Felspar, associated with smoky quartz. From granite.
 Maldon.
 2. Orthoclase Felspar, associated with quartz. From granite. Beech-
 worth.
 3. Albite, in quartz. Fryer's Creek.
 4-5. Fibrolite (2 specimens). Omeo.
 6-8. Mica (3 specimens). Large silvery plates, associated with
 quartz. Omeo.
 9. Orthoclase Veins. Clunes.
 10. Orthoclase and Felspar. Beechworth.
 11. Tremolite. Beechworth.
 12. Mica. Large silvery plates, with quartz and felspar. Rutherglen.
 13. Mica. Omeo.
 14. Mica. Daylesford.
 15. Fibrolite. Dargo River.
 16. Tourmaline. Chiltern.
 17. Tourmaline (Schorl). Chiltern.
 18. Tourmaline (Schorl). Long prisms, associated with mica
 Bethanga.
 19. Schorl, Quartz, Felspar, and Mica. Buckwong Creek.
 20. Quartz, containing mica and garnets. Beechworth.
 21. Tourmaline. Beechworth.
 22-24. Tourmaline. Wilson's Promontory.
 25. Tourmaline (Schorl). Portion of large prism somewhat waterworn.
 Hell's Hole Creek, Strathbogie Ranges.
 26. Tourmaline (Schorl). Wilson's Promontory.
 27. Tourmaline, impregnating ferruginous quartz. Chiltern.
 28. Tourmaline, in quartz. Beechworth.
 29. Tourmaline, in quartz. Wilson's Promontory.
 30. Tourmaline, in quartz. Beechworth.
 31-33. Tourmaline, in quartz. Beechworth.
 34. Arragonite. Richmond.
 35. Arragonite. Bunches of radiating acicular crystals. Smythesdale.
 36. Arragonite, in acicular crystals, associated with spersiderite in
 older basalt. Tangil.
 37. Arragonite, in bunches of radiating acicular crystals, with mammil-
 lary concretions in ferro-calcite. Richmond Quarries.

- No. 38. Phacolite. Double hexagonal pyramids in basalt. Richmond.
39. Phacolite, in basalt. Richmond.
40. Phacolite, in basalt. Richmond.
41. Phacolite, with Phillipsite in basalt. Richmond.
42. Phacolite, with concretions of carbonite of lime in basalt. Clunes.
43. Phillipsite. Orthorhombic prisms (twins) in basalt. Richmond.
44. Phillipsite, in basalt. Richmond.
45. Chabazite. Malmsbury.
46. Chabazite, in coal. Yarragon, Gippsland.
47. Analcite. Druses of trapezohedral crystals, occupying cavities in older basalt. Phillip Island.
48. Analcite, with acicular crystals of natrolite, occupying cavities in basalt. Richmond.
49. Calcite. Sandhurst.
50. Calcite. Experimental Farm, near Dookie.
51. Calcite, associated with some brown iron ore. From a vein, Buchan Lead Mine, Gippsland.
52. Calcite. Coating cavity in older basalt, Phillip Island.
53. Calcite. Lady McGregor Mine, Swift's Creek.
- 54-55. Ferro-Calcite (2 specimens). Mammillary concretions in basalt. Richmond.
56. Calcite. Crystallised in interstices between quartz crystals. New Chum Reef, Sandhurst.
57. Calcite, with quartz crystals. Sandhurst.
58. Calcite. Crystals coating cavity in limestone. Limeburners' Point, Geelong.
59. Calcite. Sandhurst.
60. Calcite. Phillip Island.
61. Calcite, associated with brown iron ore. Buchan.
- 62-66. Vivianite, in clusters, etc. Redruth.
67. Selwynite. West spur of Mount Ida, near Heathcote.
68. Talcosite, in fine seam traversing Selwynite. Mount Ida, Heathcote.
69. Olivine. Mount Shadwell, Mortlake.
- 70-72. Olivine. Mount Franklin.
73. Olivine. Geelong.
74. Brown Spar, with iron pyrites occupying cavities in quartz. 500 feet level, Central Company's Mine, Maldon.
75. Dolomite, from cavities in basalt. Talbot.
76. Carbonate of Iron, occupying cavity in quartz vein. Central Company's Mine, Maldon.
77. Quartz, with botroidal siderite (Carbonate of Iron). Clunes.
78. Grammatite. Maldon.
79. Silicate of Alumina. Beechworth.
80. Silicate of Alumina. Tarnagulla.
81. Silicate of Alumina and Magnesia. Moe.
82. Magnesite and Lime. Merri Creek.
83. Magnesia (Carbonate). Impure and siliceous. Geelong.
84. Magnesite. Semi-vitrified and siliceous. Geelong.
85. Magnesite. Similar to above. Geelong.
86. Magnesite (Carbonate of Magnesia). From large accretionary mass in decomposed bed-rock. Heathcote.
87. Magnesite. Majorca.
88. Dolomite Concretions. Majorca.
89. Selenite (Gypsum). Gre Gre, St. Arnaud.
- 90-91. Magnesia. Geelong.
- 92-95. Magnesite. Sandhurst.
96. Magnesite. Impure. Heathcote.
97. Calcerous deposit, from the basalt. Charlotte Plains.

- No. 98. Magnesite. Heathcote.
 99. Magnesite. Wimmera River.
 100-104. Dolomite Concretions. Majorca.
 105. Calcite. Dookie.
 106. Breccia of Angular Quartz. Coated and cemented by calcite. Sandhurst.
 107-108. Calcite. Dookie.
 109-112. Calcite. Stawell.
 113. Calcite. From marble deposits, Limestone Creek.
 114. Calcite, with quartz veins and carbonate of copper. Benalla.
 115. Magnesite.
 116. Limestone and Calcite veins. Waratah Bay.
 117. Calcite. Stawell.
 118. Quartz Crystals with calcite. Sandhurst.

MINERAL COLLECTION.

(METALS AND METALLIFEROUS ORES.)

GOLD.

- No. 1. Gold (4 specimens). In milky quartz. 1150-foot level, Pleasant Creek Cross Reef Company, Stawell.
 2. Gold (3 specimens). Associated with pyrites and galena in white translucent quartz. 400-foot level, Queen's Birthday Company, Goldsborough.
 3. Gold (2 specimens). In quartz, associated with felspar. Jersey Reef, Inglewood.
 4. Gold. Associated with blende in white translucent quartz. Bristol Hill, Maryborough.
 5. Gold. In ferruginous laminar and striated quartz. Perseverance United Company, Talbot.
 6. Gold. In greyish-white vitreous quartz. From 595-foot level, New North Clunes Company, Clunes.
 7. Gold (2 specimens). Associated with decomposed pyrites and scorodite in quartz. From 450-foot level, South Clunes Company, Clunes.
 8. Gold (2 specimens). Associated with arsenical pyrites in quartz. From 223-foot level, Port Phillip Gold Mining Company, Clunes.
 9. Gold (4 specimens). More or less associated with pyrites and specks of galena in quartz. From 320-feet to 394-feet levels, Clunes Gold Mining Company, Clunes.
 10. Gold (1 specimen). In quartz. From a quartz reef in bed-rock below alluvial and volcanic deposits. Band and Albion Consols Gold Mining Company, Sebastopol, near Ballarat.
 11. Gold. In ferruginous quartz. Rokewood.
 12. Gold. In crystalline ferruginous quartz. Adam's Reef, Daylesford.
 13. Gold. Associated with green carbonate of copper in ferruginous quartz. Fryerstown.
 14. Gold. On junction of slate and quartz. Cornish Company, Simons' Reef, Blackwood.
 15. Gold (2 specimens). In ferruginous quartz. Blackwood.
 16. Gold (3 specimens). Associated with iron pyrites and galena in quartz. Bird's Reef, Sandhurst.
 17. Gold (2 specimens). In ferruginous quartz, enclosing fragments of slate. Lightning Reef, Sandhurst.
 18. Gold. Associated with pyrites in greyish-white quartz. Lauriston.

- No. 19. Gold (3 specimens). Fine specks in brownish ferruginous quartz. From crushings of this quartz, yields of 6 ozs. per ton have been obtained. Messrs. Manning and Sinnet's Claim, Rushworth.
20. Gold. Associated with acicular arsenical pyrites in quartz. Jamieson.
21. Gold (3 specimens). Associated with pyrites in white quartz, with slaty laminations. Toombon, Aberfeldy River.
22. Gold. Finely disseminated in grey and white quartz. No. 4 level, Western Lode, Cohen's Reef, Walhalla.
23. Gold (2 specimens). (a) Associated with galena in thin quartz vein traversing highly felspathic granitic dyke stone. (b) Gold in quartz from a larger vein; from a dyke—the so-called Pioneer Reef—traversing gneiss. Sandy Creek, Beechworth.
24. Auriferous Quartz. Fryerstown.
25. Auriferous Quartz. Same locality. Fryerstown.
26. Auriferous Quartz. Same locality. Fryerstown.
27. Two small Cores showing gold; obtained with diamond drill. G.G. Consolidated Gold Mining Company, Sandhurst.
28. Gold. In quartz. Inglewood.
- 29-30. Gold. In quartz. Goldsborough.
- 31-32. Gold. In quartz. Maryborough.
33. Gold. In quartz. Clunes.
34. Gold. In quartz. Golden Point.

ORES OF SILVER.

- No. 1. Argentiferous Pyrites. In auriferous quartz, from a depth of 206 feet. St. Arnaud Silver Lead Mines Association, St. Arnaud.
2. Argentiferous Ore. Mixed with sulphides of iron, lead, and zinc, with traces of copper. Lord Raglan and St. Arnaud Company, St. Arnaud.
3. Embolite. Same locality.

ORES OF BISMUTH.

- No. 1. Metallic Bismuth. Wombat Creek.

ORES OF TIN AND METALLIC TIN OBTAINED THEREFROM.

- No. 1. Stream Tin Ore. Assay gave 72 per cent. of metallic tin. Bunyip River, Gippsland.
2. Stream Tin Ore. Intermixed with tourmaline, hornblende, iron sand, and quartz. Assay gave 40 to 43 per cent. of tin. La Trobe River, Gippsland.
3. Stream Tin Ore. Black and ruby sand with zircon. Assay gave 61 per cent. of metallic tin. Branch of Franklin River, near Mount Fatigue, South Gippsland.
4. Stream Tin Ore. Contains granular fragments of metallic tin, and only a few grains of titaniferous iron. The sample consists of nearly pure cassiterite, 71 per cent. being metallic tin. Dry Creek, Upper Murray River.
5. Stream Tin. Near Spence.
6. Stream Tin Ore. Chiltern.
7. Stream Tin Ore. Said to yield 75 per cent. of tin and 90 ozs. of gold per ton. A cubic yard of washdirt is stated to yield $2\frac{1}{2}$ ozs. of gold and $\frac{1}{2}$ cwt. of tin ore. From a depth of 15 feet. Gitts' Claim, Napoleons, near Beechworth.
8. Stream Tin Ore. From tributary of Dry Forest Creek. Mitta Mitta.

No. 9. Stream Tin Ore. From Sandy Gully.

10. Cassiterite (Stream Tin). Fine grained, with fine titaniferous iron, gem-sand, and a little fine gold. Branch of Franklin River, South Gippsland.
11. Cassiterite (Stream Tin). In fine grains, associated with titaniferous iron, corundum, and other fine sand. El Dorado.
12. Cassiterite (Stream Tin). Rather coarse grained. La Trobe River, Gippsland.
13. Cassiterite (Stream Tin). Rather coarse grained. Cudgewa Creek.
14. Cassiterite (Stream Tin), with magnetic and titaniferous iron sand. Murray River, 50 miles from Albury.
15. Cassiterite (Stream Tin), with magnetic and titaniferous iron sand. Cudgewa Creek, near junction with Murray.
16. Cassiterite (Stream Tin). Coarse grained. Strathbogie Ranges.
17. Cassiterite (Stream Tin). Fine grained, with titaniferous iron and other sand. La Trobe River, Gippsland.
18. Cassiterite (Stream Tin). Intermixed with other sand. 'Possum Hill, Orville.
19. Cassiterite (Stream Tin). Rather coarse grained sample. Chiltern.
20. Cassiterite (Stream Tin). Fine grained, intermixed with other sand. Napoleon Flat, Beechworth.
21. Ingots of Tin. Woolshed Creek.
22. Ingot of Tin. Reid's Creek.
23. Breccia. From tin bearing lode, Beechworth.

ORES OF LEAD.

No. 1. Native Lead. From gravel beneath basalt, Haddon Deep Lead.

2. Galena, with copper pyrites. Percydale.
3. Galena (Sulphide of Lead), with pyrites and quartz. Fiddler's Reef, Avoca.
4. Galena, with copper pyrites and quartz. Percydale.
5. Galena, with copper pyrites and quartz. Percydale.
6. Galena (Argentiferous), with pyrites. Rising Star Mine, St. Arnaud.
7. Galena (Argentiferous). Similar to foregoing. Same locality.
8. Galena, with calcite. Tarnagulla.
9. Galena, with calcite. Same locality.
10. Galena, with iron pyrites in quartz. Clunes.
11. Galena. Upon assay it yielded—Metallic lead, 76 per cent.; silver, 4 ozs. per ton. Corner Inlet.
12. Galena (Sulphide of Lead). Associated with cerrusite (carbonate of lead) and traces of phosphate and sulphate of lead. Yielded upon assay 5 ozs. 8 dwts. of silver per ton. Thirty-mile Creek, Dargo High Plains.
13. Galena. Thirty-five Mile Creek, head of Crooked River.
14. Antimonial Lead Ore (Sulphides of Antimony and Lead). Yielded on assay 7 ozs. 7 dwts. of silver and a trace of gold per ton. Dargo River.
15. Galena. Associated with pyrites, oxide of iron, and quartz. Bethanga.
16. Galena. Similar to foregoing. Same locality.
17. Galena (Sulphide of Lead). Swift's Creek, near Omeo.
18. Galena, with copper pyrites in quartz. From 150 feet. Dark River Company's Shaft.
19. Galena. More or less coated with iron and carbonate of lead. Back Creek, Buchan.
20. Galena. Similar to foregoing. Same locality.

- No. 21. Argentiferous Galena, with copper pyrites in quartz. Back Creek, Buchan.
 22. Galena. Snowy River.
 23-24. Galena. Similar to foregoing. Snowy River.
 25. Galena. Associated with pyrites. Snowy River.
 26. Galena, with argentiferous pyrites, yielding 3 ozs. 5 dwts. of silver per ton. Mountain Creek, Snowy River.
 27-28. Galena (Sulphide of Lead). Buchan.

ORES OF MOLYBDENUM.

- No. 1. Molybdenite (Sulphide of Molybdenum). In granite. Maldon.
 2. Molybdenite. In quartz vein in granite. Yackandandah.
 3. Molybdenite. In quartz. Beechworth.

ORES OF ANTIMONY.

- No. 1. Oxide of Antimony. Dunolly.
 2. Stibnite (Sulphide of Antimony), with quartz. Barry's Reef, Blackwood.
 3. Stibnite (Sulphide of Antimony), with quartz. Golden Point, Blackwood.
 4. Stibnite (Sulphide of Antimony), surrounded by oxide of antimony. Staffordshire Flat, Redcastle.
 5. Stibnite (Sulphide of Antimony), (2 specimens). From 200 to 350 feet level, Alison Mine, Costerfield.
 6. Oxide of Antimony. Alison Mine, Costerfield.
 7-8. Stibnite (Sulphide of Antimony). Old Antimony Mine, Heathcote.
 9. Stibnite (Sulphide of Antimony). Tobin's Claim, Sunday Creek.
 10-13. Stibnite (Sulphide of Antimony), (2 specimens). Yow Yow, near Eltham.
 14. Cervantite (Oxide of Antimony). Enclosing small portions of the sulphide. Ringwood.
 15-16. Valentinite (Oxide of Antimony). Containing a little copper. Ringwood.
 17. Stibnite (Sulphide of Antimony). Merton.
 18. Stibnite (Sulphide of Antimony). Donovan's Creek, Upper Yarra.
 19. Stibnite (Sulphide of Antimony), with quartz. Wood's Point.
 20. Stibnite (Sulphide of Antimony). Blackwood.
 21. Sulphide of Antimony. Merton.
 22. Sulphide of Antimony. Yow Yow.
 23. Sulphide of Antimony. Whroo.
 24. Sulphide of Antimony. Heathcote.
 25. Antimony (Cowl Metal). Same locality.
 26. Star Antimony. Prepared under a patented process by Mr. J. L. Morley, a student in the Laboratory of the Technological Museum, Melbourne.
 27. Antimony Regulus. Costerfield.

IRON AND ARSENICAL PYRITES.

- No. 1. Iron and Arsenical Pyrites and Gold, with quartz (2 specimens). Stawell.
 2. Iron Pyrites. From a depth of 323 feet in quartz reef, Mitchell's Reef, Ararat.

- No. 3. Iron Pyrites. Occupying drusy cavities in quartz. Wedderburn.
4. Iron Pyrites. Thinly coating joints in quartzite. From 250-feet level, King's Birthday Mine, Bealiba Reef, Goldsborough.
5. Cubical Iron Pyrites, with translucent quartz. From narrow leader, 180-feet level. Bealiba Reef, Goldsborough.
6. Iron Pyrites. Impregnating fossil wood. Maryborough.
7. Iron Pyrites. In graphitic schists.
8. Massive Arsenical Pyrites, in quartz. Stawell.
9. Pyritous Rocks. In quartz. Bethanga.
10. Pyrites. From a depth of 25-feet, Mariners' Reef Mine, Maryborough.
11. Massive Iron Pyrites, with milky quartz. From 890-feet level, Robinson's Reef, Clunes.
12. Massive Magnetic Pyrites. Albion Company's Mine, Clunes.
13. Iron Pyrites. Cementing fragmentary quartz. Clunes.
14. Iron Pyrites. In quartz. From 112-feet level, Wilson's Reef, Daylesford.
15. Cubical Iron Pyrites. Embedded in slate. Koch's Pioneer, Sandhurst.
16. Iron Pyrites. On slate. Cattle's Reef, Fryerstown.
17. Iron Pyrites. On or embedded in slate. Perseverance Company, Fryerstown.
18. Cubical Iron Pyrites, with small quartz vein on slate. Fryer's Creek.
19. Cubical Iron Pyrites. On slate. Rowe Brothers' Mine, Fryerstown.
20. Iron Pyrites. Occupying cavities and seams in quartz. Ferron's Reef, Fryerstown.
21. Arsenical Pyrites. In acicular crystals, with cubical iron pyrites in dyke stone. Cohen's Reef, Walhalla.
22. Arsenical Pyrites, with quartz. Wodonga.
23. Iron Pyrites (2 specimens), with ferruginous quartz. Budgee Reef, Gippsland.
24. Iron and Arsenical Pyrites (2 specimens), with some copper pyrites in quartz. Bethanga.
25. Massive Pyrites, with a little copper. Omeo.
26. Massive Iron Pyrites, with calc-spar. Omeo.
27. Iron Pyrites. From Pole Star Reef, Omeo.
28. Iron Pyrites. In quartz attached to quartzite. Gibbo River.
29. Iron Pyrites. From Buchan Lead Mine, Gippsland.
30. Scorodite (Arsenate of Iron). Occurring as a vein in metamorphic rock; contains gold. Meade's Claim, Strathbogie Ranges.
31. Pyrrhotite (Magnetic Pyrites). Maldon.

OTHER ORES OF IRON.

- No. 1. Brown Iron Ore. In plates and granules, with iridescent tarnish. Gellibrand River, Cape Otway District.
2. Brown Iron Ore (Limonite). Smythesdale.
3. Brown Iron Ore. Creswick.
4. Brown Iron Ore. Buninyong.
- 5-6. Brown Iron Ore (2 specimens). Lal Lal.
7. Brown Iron Ore. Moorabool River.
8. Brown Iron Ore. Near Geelong.
9. Brown Iron Ore. Maldon.
10. Brown Iron Ore. Daylesford.
11. Brown Iron Ore. Castlemaine.
12. Brown Iron Ore. Heathcote.
- 13-14. Brown Iron Ore. Dookie.

- No. 15. Brown Iron Ore. Dandenong.
16. Brown Iron Ore. From Older Volcanic country near Brandy Creek.
17. Hæmatite. Grantville.
18. Brown Iron Ore. From shrinkage cracks in Older Volcanic rocks south of Traralgon.
19. Brown Iron Ore. From near Walhalla Copper Mine, Thomson River, Gippsland.
20. Brown Iron Ore. Granite Flat, Snowy Creek, Beechworth District.
- 21-22. Micaceous Iron Ore. Associated with quartz. Mount Nowa Nowa, Gippsland.
23. Micaceous Iron Ore, partly changed into limonite. Grampians.
24. Pisolitic Iron Ore. From surface of basalt, Langi Logan, Hopkins River.
25. Pisolitic Iron Ore. From surface of basalt, Botanical Gardens, Ballarat.
26. Titaniferous Iron Sand. Coliban River.
27. Titaniferous Iron Sand, containing a little fine gold. Guildford.
28. Titaniferous and Chromic Iron Sand. Argyle Gully, Heathcote.
29. Titaniferous Iron Sand. Heathcote.
30. Titaniferous Iron Sand, containing fragments of garnet and zircon. From a creek at Euroa.
31. Titaniferous Iron with other Sand. From Reeves River, Gippsland Lakes.
32. Magnetic Oxide of Iron, with titaniferous iron sand. Buckland River.
33. Titaniferous Iron Sand. Stonewall River, Gippsland.
34. Wolfram (Tungstate of Iron). In quartz. Swift's Creek, Gippsland.
- 35-36. Earthy Manganese Ore (Wad), (3 specimens). Concretionary nodular, with veins and threads of carbonate of manganese. From Lead, Lothair Mine, South Clunes.
37. Earthy Manganese Ore (Wad). Maldon.
38. Dendritic markings of Oxide of Manganese on dull white amorphous quartz. Band of Hope Claim, Talbot.
39. Black Oxide of Manganese. Skipton Diggings, near Linton.
40. Black Oxide of Manganese. Dinah Reef, Sandhurst.
41. Earthy Manganese Ore (Wad). Costerfield.
- 42-43. Cobaltiferous Manganese. Near Tangil.
44. Pyrolusite (Binoxide of Manganese), with traces of cobalt and copper in quartz. Tangil.
45. Earthy Cobaltiferous Manganese. From near Walhalla.
46. Pyrolusite (Binoxide of Manganese), with traces of copper and cobalt. Seaton.
47. Cobalt (Wad). Molesworth.
48. Manganiferous Iron Ore. Molesworth.

ORES OF ZINC.

- No. 1. Zinc-Blende. Massive sulphide of zinc, with iron pyrites. Upon assay it yielded 3 ozs. 5 dwts. of silver per ton. From 400-feet level, Western Reef, Chrysolite Hill, St. Arnaud.
2. Zinc-Blende. Associated with galena and pyrites in quartz. Wilson's Reef, St. Arnaud.
3. Zinc-Blende. In quartz. New Chum Reef, Sandhurst.
- 4-8. Zinc-Blende. Associated with copper and iron pyrites in quartz. Bethanga.

ORES OF COPPER.

- No. 1. Native Copper. Showing crystalline structure, and associated with a little quartz. From a depth of 250 feet in quartz reef, Wilson's Hill, St. Arnaud.

- No. 2. Carbonate and Oxide of Copper. Puzzle Range.
3. Green Carbonate of Copper, impregnating decomposed hornblendic dyke stone. Walhalla Copper Mine, Thompson River, Gippsland.
4. Copper Pyrites (2 specimens). One piece attached to portion of wall of lode. Same mine and locality.
5. Copper Pyrites. Strongly impregnating dyke stone. Same mine.
6. Copper Pyrites. Yielding an assay of 22 per cent. of copper and a trace of silver. Range between Mount Wellington and Castle Hill, Gippsland.
7. Native Copper (2 specimens). In fragmentary quartz rock cemented by clayey substance. Bethanga.
8. Ferruginous Gossan (2 specimens), with green carbonate of copper. Bethanga.
9. Ferruginous Gossan, with opaline quartz and blue carbonate of copper. Bethanga.
10. Green and Blue Carbonates of Copper, with quartz (2 specimens). Bethanga.
11. Green Carbonate of Copper, with copper, iron, and arsenical pyrites, impregnating vein stone (2 specimens). Bethanga.
12. Red Oxide, with green and blue carbonates of copper. Bethanga.
13. Black Oxide of Copper, with yellow and variegated copper ore, iron, and arsenical pyrites in vein-stone (2 specimens). Bethanga.
14. Copper Pyrites and Green Carbonate of Copper, with oxide of iron and quartz. Bethanga.
15. Copper, Arsenical and Magnetic Pyrites (3 specimens). Bethanga.
16. Copper and Iron Pyrites impregnating vein stone. Bethanga.
17. Copper Pyrites, grey (2 specimens). Bethanga.
18. Copper Pyrites (and variegated Copper Ore) with calcite. Bethanga.
19. Copper Pyrites and variegated Copper Ore, with zinc-blende, magnetic and arsenical pyrites, and quartz, (3 specimens). Bethanga.
20. Yellow and Grey Copper Ore (4 specimens). Bethanga.
21. Copper Pyrites in quartz (2 specimens). Granite Flat, Snowy Creek, Beechworth District.
22. Silicate of Copper, coating joints of soft earthy rock. Granite Flat, Snowy Creek, Beechworth District.
23. Copper Pyrites, with ferruginous coating (2 specimens). Same locality.
24. Copper Pyrites (2 specimens). Merrimac Creek, a branch of Snowy Creek.
25. Green and Blue Carbonates of Copper. From near Lake Omeo.
26. Copper Pyrites. Strongly impregnating dense fine-grained rock. Snowy River.
27. Copper Pyrites and Green Carbonate of Copper. Upon assay it gave traces of gold and silver. Mountain Creek, Snowy River.
28. Copper Ore. Thomson River.
29. Copper Ore. Bethanga.
30. Copper (Metallic). Thompson River.
31. Copper (Metallic). Thompson River.
- 32-33. Slag. Thompson River.

SPECIAL EXHIBITS.

Class 1.

AURIFEROUS QUARTZ, &c.

Auriferous Quartz, showing gold. From Fryerstown. Exhibited by Clark Bros.

Specimen of Gold and Quartz. From Break o'Day Mine, Corindhap. Exhibited by N. G. Elder, Esq.

Alluvial Gold Nuggets and Pebbles of Quartz, with gold. From Upper Murray. Exhibited by James E. M'Kay, Esq.

Collection of Specimens. Gold in Quartz (rhombic-dodecahedron); Crystals of Gold (rhombic-dodecahedron and cubo-octahedrons); Gold in a Clear Quartz Crystal; Gold Chemically Pure, both bar and button; two Specimens Osmium Iridium. From Ballarat. Exhibited by Mr. Henry Rosales.

Topaz. Weight, 135 carats. Found at Dunolly at a depth of 70 feet. Exhibited by Oliver Cooper, Esq.

Quartz Specimens, containing gold pyrites, &c. Forwarded by H. B. Nicholas, Esq., Senior Inspector of Mines, Castlemaine, 1886:—

No. 1-2. Specimen from a vein of copper pyrites, containing 1 oz. 9 dwts. of gold per ton, and silver-lead. From the Tarrengower Mine, N. Maldon.

3-4. Auriferous Quartz, with pyrites, blende, and galena. From the New Beehive Mine, Maldon.

5-7. Roasted Quartz, rich in fine gold. From the South Exhibition Mine, Mount Tarrengower. The gold could not be seen in these specimens before roasting.

8. Gold-bearing Clay Slate. From the Christmas Reef Mine, Yandoit.

9. Water-worn Quartz Boulder, studded with gold on one face. From the ancient river bed worked by the Ellis Freehold Gold Mining Company, Malmsbury.

10-13. Auriferous Quartz Specimens. From the Egyptian Company's Mine, Malmsbury. Milk-white crystalline quartz.

14-18. Auriferous Quartz Specimens. From the Queen's Birthday Company's Mine, Malmsbury. Opaque blue-veined quartz.

19-23. Quartz Specimens, containing gold, pyrites, blende, and galena. From Mr. R. D. Oswald's Independent Mine, Parkins' Reef, South Maldon. No. 21 shows the mode of occurrence of the fine gold in this lode.

24-35. Quartz Specimens, containing gold, pyrites, blende, and galena. From Mr. R. D. Oswald's North British Mine, Parkins' Reef, South Maldon. No. 25 contains in addition a mineral very much like native silver.

Quartz Specimens, containing gold, pyrites, &c. Forwarded by H. B. Nicholas, Esq., Senior Inspector of Mines, Castlemaine, 1888:—

No. 1. Block of Gold-bearing Quartz. From M'Farlane's Reef Company.

2. Quartz and Sandstone Specimens, containing coarse gold. From Shaw's Rob Roy Company, Havelock.

3. Gold occurring in Pyrites, Zinc Blende, and in Pure White Quartz. From Messrs. Rowe Bros. and New Era Mines, Fryer's Creek. Also perfect Quartz Crystal and Chrysoprase from same locality.

4-5. White Laminated Quartz Blocks, containing fine gold in the laminae, and in the solid quartz. From the Queen's Birthday Mine, Malmsbury.

6-12. Brown and White Laminated Quartz, fine gold disseminated throughout.* From O'Connor's Freehold Mine, Malmsbury.

13-14. Quartz from 500 feet and 600 feet levels of Mr. R. D. Oswald's North British Mine, Maldon.

15-17. Quartz from the 600 feet level of Mr. Oswald's Independent Mine, Maldon. These specimens contain sulphurets of iron, zinc, lead, and bismuth, with fine gold distributed throughout.

* NOTE.—O'Connor's Freehold, Malmsbury. Length of gold-bearing reef upwards of 200 feet. From 5th February, 1882, to 14th July, 1888, crushed 8127 tons, yielding 11,154 ozs. 12 dwts. of gold.

- Nos. 18-19. Gold-bearing Grey Quartz. From 250 feet level of the New Chum Mine, Maldon.
20. Very Rich Gold Specimen. From 650 feet level of the New Beehive Mine, Maldon. The gold is covered with a fine coat of zinc. It occurs in massive form of several ounces in weight, as well as in fine grains in the quartz and pyrites.
- 21A. Thirty-one Specimens of Gold-bearing Quartz. From O'Connor's Tribute No. 1 of the Francis Ormond Mine, Chewton.
- 21B. Forty pieces of rough Gold, averaging $3\frac{1}{4}$ dwts. Contributed by the Francis Ormond Company. This gold was coated with quicksilver when taken from the stamper boxes, and was retorted.
- 22-25. Four 1 foot cubes of Granite; polished on one side. From Blight's Mount Alexander Granite Quarry. This granite is a good-working and free-dressing stone, and takes a fine polish.
26. Slate Flagging. From Messrs. Jackson and Sons' Quarry, Specimen Gully; Barker's Creek.
- 27-31. Five Samples of Slate, two planed, and two planed and moulded. No. 31 is in its natural state. Size, 66 inches by 42 inches, by $\frac{5}{8}$ ths of an inch. It possesses true lines of cleavage, with an indurated fine grain. From the Castlemaine Paving Company's Quarry.
- 32-36. Specimens of Quartz Crystals; slickensides and nodules of sandstone. From the Crown Cross and Try-Again Mines. Also Fossils from the Fossil Reef, Rushworth.
- Collection from the South Wattle Gully Gold-mining Company, Forest Creek, Chewton.
- No. 37-39. Three Specimens of Auriferous Quartz, with heavy gold in cavities and in the solid quartz, also containing galena, blende, and pyrites, some of the latter undergoing decomposition.
40. Specimen of rich gold-bearing ferruginous quartz; the gold in small grape-like clusters.
- 41-43. Three Specimens of White Quartz. Faces coated with oxide of iron, and slate, containing pyrites and galena, richly impregnated with gold.
44. Quartz Specimen, containing large perfect quartz crystals, and coarse gold and pyrites.
- 45-46. Gold-bearing White and Brown Quartz, with pyrites and galena; gold in solid quartz.
47. Gold-bearing Crystalline Quartz, with yellow ferruginous powder in cavities containing gold.
- 48-49. Brown-coated Quartz Specimens, with gold in small grape-like clusters, pyrites and galena showing freely.
50. Specimen of Brown Quartz, with gold intimately associated with pyrites and galena.
51. Auriferous Quartz; containing rich gold in crystal cavities and in the solid quartz.
52. Brown Ferruginous Quartz, with coarse gold plentifully apparent.
- Auriferous Quartz. From "Never-can-Tell," Hard Hill, Rushworth. Exhibited by Messrs. Thomson and Harrison.
- Auriferous Quartz. From No. 5 "East Hope of Denmark," Old Ned's Gully, Rushworth. Exhibited by Messrs. Molloy and Melville.
- Auriferous Quartz. From "At Last," Black Range. Exhibited by Messrs. Johnson and Taylor.
- Washdirt and Cement. From Chalk's No. 1 Gold Mining Company.
- No. 1. Washdirt and Cement. From Fryers.
2. Washdirt. From Fryers.
3. Washdirt. From Church's Flat, Fryers. (Ellis and party.)

- No. 4. Washdirt. From Fryers. (Turner and party.)
- 5. Washdirt. From Butchers' Hill, Fryers.
- 6. Washdirt. From Williams' claim, "New Year's Flat," Fryers.
- 7. Washdirt and Cement. Lucky Company.
- 8. Pyrites in Quartz, Rowe. Fryerstown.
- 9. Cement. (Hughes' party). Fryers.

The above specimens of Washdirt and Cement, Pyrites, &c., exhibited by Mr. Mark Amos.

Specimens showing different stages during extraction of gold, silver, copper, iron and nickel from the auriferous ores of the Wallace Bethanga Smelting Company.

- Nos. 1-18. Bethanga Raw Ore.
- 1-4. Bethanga Roasted Ore.
- 1-3. Bethanga Regulus.

Bethanga Specimen. Speiss, with 9160 per cent. of malleable metals.

Bethanga Specimen. Bear.

Bethanga Specimen. Slag.

Auriferous Quartz. Long Tunnel Gold Mining Company. Exhibited by Hon. W. Pearson, M.L.C.

Quartz Specimens. From Shaw's Rob Roy Quartz Mining Company, Maryborough; found in reef 160 feet from surface. Estimated value, £500. Exhibited by Mr. H. Robinson, manager.

Gold Trophy representing total quantity of gold obtained from the Madame Berry Gold Mining Company, Seven Hills, Kingston. (Amount of gold obtained from 1878 to 14th July, 1888—206,888 ozs. 18 dwt. 12 grs., valued at £846,073 11s). Exhibited by the Madame Berry Gold Mining Company.

Auriferous Quartz. From New Bendigo Quartz Mining Company, St. Arnaud. Average yield 1 oz. gold per ton. Exhibited by the New Bendigo Quartz Mining Company.

Specimen of Auriferous Quartz. From 1600 feet deep. Exhibited by the New Chum and Victoria Gold Mining Company, Sandhurst.

Auriferous Ore, consisting of iron, copper, and arsenical pyrites, with other minerals. Wallace Bethanga Gold Mining Company, Bethanga. Exhibited by the Hon. J. A. Wallace, M.L.C.

The following collection is exhibited by Peter Wright, Esq., M.L.A.—

- No. 1. Auriferous Quartz. From 80 feet level, Border City United Gold Mining Company, Granya.
- 2. Auriferous Quartz. From 100 feet level, Granya Gold Mining Company.
- 3. Auriferous Quartz. From 200 feet level, Hidden Treasure claim, Granya.
- 4. Process of Extraction. Border City United Gold Mining Company.
 - 1st process. Crushed ore.
 - 2nd process. Concentrated ore.
 - 3rd process. Calcined ore.
 - 4th process. Refuse from pans.

SPECIAL EXHIBITS.

Class 1.

- No. 1. Auriferous Quartz, showing hanging wall, and foot wall; Dyke, stone, containing acicular pyrites, and slickenside on slate, and

- quartz with visible gold. Exhibited by Long Tunnel Gold Mining Company, Walhalla.
- No. 2. Gold Trophy, representing quantity of gold obtained from Long Tunnel Gold Mining Company from 1871 to 1887.
 3. Model of Long Tunnel Gold Mining Company's Mine, Walhalla. Vertical sections 16 feet to 1 inch.
Large Block Auriferous Stone from Granya from 100 feet level, and is a fair sample of the lode. Exhibited by Mr. Thomas White, general manager.
 - No. 1. Gold Trophy, representing quantity of gold obtained from Band of Hope and Albion Consols Mine, Ballarat, in form of a dodecahedron. Exhibited by R. M. Sergeant, Esq. J.P., manager.
 2. Auriferous Quartz from same mine. Exhibited by R. H. Sergeant, Esq., J.P., manager.
 3. Quartz Boulders from washdirt of Deep Lead, Band of Hope and Albion Consols Mine, Ballarat. Exhibited by R. M. Sergeant, Esq., J.P., manager.

MINING DEPARTMENT.

- No. 1. Eucrinital Marble (polished). Thomson River.
2. Manganese Ore. Tangil River, Gippsland. Assay gives 64 per cent. oxide manganese and a trace of gold. Exhibited by Jensen and Co., Sale.
3. Glaciated Boulders. From Rutherglen.
4. Agate (beautifully marked). From Forest Creek.
5. Star Antimony, in marketable form. Prepared by a patented process, by the inventor, Mr. J. L. Morley, at Technological Museum Laboratory, Melbourne.
6. Iron Ore. From Dookie.
7. Iron Ore. From Riddell's Creek.
8. Iron Ore (brown). From Lal Lal.
9. Soils (6 different varieties). From Dookie Model Farm.
10. Basaltic Soil. From Lindersfern, Mount Wallace.
11. Granite Soil. From Beechworth.
12. Soil. From Dookie.
13. Soil from Felspathic Rocks. Lilydale.
14. Post Pliocene Soil. Barnawartha.
15. Limestone Soil. Lilydale.
16. Kaolin. Ringwood.
17. Sulphide and Oxide Antimony. Ringwood.
18. Gold and Pyrites in Slate. Buninyong Estate Mine, Buninyong.

SPECIAL EXHIBITS.

Class 2.

TIN ORES.

- Tin Ore (Stream Tin). From Agnes River, Toora, S. Gippsland. Ingots of Tin and Gold extracted therefrom. Assay gives yield from 15 lbs. ore: Metallic tin, 9½ lbs.; percentage, 63.33; gold extracted, 94 grains; equal to 29 ozs. 8 dwts. per ton of ore. Exhibited by the Agnes River Tin Mining Proprietary Company, Toora, S. Gippsland.
- Lode and Stream Tin and Ingots of Tin. From Upper Murray Tin Mining Company, Koetong. Assay from 58 lbs. of stream tin gives a yield of 35½ lbs. metallic tin, equal to 60.11 per cent. Exhibited by Mr. W. B. Davis.

- No. 1. Lode Tin. From the Upper Murray Tin Mining Company, Koetong.
2. Stream Tin. From same mine and locality.

No. 3. Stream Tin. From the Premier Tin Mining Company, Mount Cudgewa. Exhibited by Peter Wright, Esq., M.P.

Class 3.

ORES OF LEAD.

No. 1-3. Three specimens of Galena, of which an analysis gave—

Lead	...	82 per cent.
Silver	...	30 ozs. to the ton.
Gold	...	1 oz. 5 dwts. to the ton.

From the Debet Mine, Back Creek, Buchan. Exhibited by Messrs. Geo. Smart and B. H. Dods, the proprietors of the mine.

Class 4.

ORES OF COPPER.

No. 1-2. Copper Ore (Pyrites), with arsenical and iron pyrites. From Bethanga.

3-4. Two specimens of Ores of Copper Pyrites (yellow and grey ore), associated with iron and arsenical pyrites. From the mines of Messrs. Kitchingman, on the Hamburg line; and J. A. Wallace, Harris and Hollow, and Rhodes and Co., on the Gift line of lode, Bethanga.

Dressed Copper Ore. From the Middelton Copper Mining Company, Snowy Creek. Exhibited by Peter Wright, Esq., M.P.

Class 5.

ORES OF ANTIMONY.

Specimens of Antimony Ore, containing a trace of silver. From a depth of 140 feet. Exhibited by the Sydenham Quartz Gold Mining Company Limited, Dunolly.

Class 6.

ORES OF IRON.

Micaceous Iron Ore. From Mt. Nowa Nowa, Gippsland, containing 65.52 per cent. metallic iron and slightly under 2 ozs. silver per ton, with traces of gold. Exhibited by the lessee, Mr. Joseph Clark.

Class 7.

COAL.

No. 1. Coal. From Kilcunda, near Westernport. Exhibited by Mr. E. A. Wynne.

2. Coal-cutting machine (for mining small coal seams); employed at Kilcunda. Exhibited by Mr. E. A. Wynne.

Coal. From Tarwin River. Exhibited by the Tarwin River Coal Prospecting Company.

Coal. From Grange Colliery Company Limited, Moe, South Gippsland. The mine is distant 84 miles from Melbourne. Thickness of seam, 2 feet. Exhibited by Jacob Braché.

Coal. From Hazlewood. The mine is distant about 4½ miles from the Yinnar railway station. Analysis of coal by J. Cosmo Newbery, Esq.: Moisture, 1.65 per cent.; volatile matter, 15.95 per cent.; fixed carbon, 70.40 per cent.; ash, 12 per cent. The Coke is of a very firm character. Exhibited by

The Hazlewood Coal Prospecting Company, South Gippsland. Coal. From different diamond drill bores, Cape Patterson. Exhibited by Mr. Nathaniel Levi.

Rocks and Minerals. From Beechworth district. Exhibited by Mr. E. J. Dunn.

Victorian Fossils and Minerals. Exhibited by the Rev. A. W. Crosswell. Rocks, Minerals, and Fossils of Australian Alps, Gippsland; also Polished Specimens of Marble, &c., and Photographs of Rock Scenery from same locality. Exhibited by Mr. James Stirling, F.G.S.

Porphyry; useful in the manufacture of earthenware, &c. From Seymour. Exhibited by Mr. Purcell.

Collection of Fossil Mollusca. From Muddy Creek. Arranged and exhibited by Mr. S. K. Vickery, Associate M.I.C.E., Ararat.

Quartz Crystals and Pyrites. From Fryerstown. Exhibited by Mr. Thomas Hughes.

Dendritic Markings on Slate, and a large Quartz Crystal. From Sandhurst. Exhibited by Mr. Stephens, Sandhurst.

Small Specimens Quartz Crystals.

No. 1. Specimen of Prase or Chrome Stained Quartz. From Heathcote.

2. Specimen of Magnesite. From same locality. Exhibited by Mr. John Hedley.

Two samples of Infusorial Earth. From Talbot. Exhibited by Mr. Clarence Smith, mining surveyor.

Large sample of Common Opal. From Snowy River, Gippsland.

Collection of Victorian Mineral Specimens, principally Zoolites; also a specimen of Crystallized Gold in Quartz from Sandhurst, and Cairngorms (out) from Beechworth district, with various other interesting specimens. Exhibited by Mr. James Mitchell, Malvern.

Exhibits of Auriferous Quartz, &c., and Cubes, representing gold produced from various mines in Sandhurst, &c., &c. Exhibited by Sandhurst School of Mines.

M'Lean's Alpine Battery, Geelong. Exhibited by Mr. M'Lean.

SPECIAL EXHIBITS.

Class 8.

BUILDING STONES, &c.

Samples of Clays. From Yarragon. Exhibited by Mr. Rollo.

Samples of Fire Clay. From Bacchus Marsh. Exhibited by Mr. Thomas Akers.

Samples of Limestone and Lime from same. From Comadai. Exhibited by Alkenade Bros., the proprietors.

Samples of Hydraulic Limestone and Lime from same. Exhibited by the Hydraulic Limestone Company.

Samples of Kaolin. From Ringwood. Exhibited by Mr. Armstrong.

A large exhibit of the principal Building Stones of Victoria, including Granites, Marbles, Limestone, Sandstone, Freestone, &c., obtained from various contributors. Exhibited by the Mining Department of Victoria.

Two large undressed Flagstones. From Mansfield. Exhibited by Mr. Kelson.

One large undressed Slab of Slate, 10 ft. by 2½ ft. 3 in., and four pieces planed and dressed, also several samples of Roofing Slates. Exhibited by the Percydale Slate Company Limited, Percydale.

Two large and two small samples of planed and dressed Slate. From the Kara-Kara Quarries, Pyrenees Range, near Avoca. Exhibited by Messrs. W. B. Spence and Co.

Sample of Slate. From Bowman's Forest Gap, Beechworth.

MINING DEPARTMENT.

LIST OF MAPS, PLANS, &C.

Geological Sketch Map of Victoria.

Geological Sketch Map of Australia.

Geological Map of the Ararat Goldfield.

Geological Map of the Ballarat Goldfield.

Geological Map of the Creswick Goldfield.

Geological Map of the Sandhurst Goldfield.

Geological Map of the Stawell Goldfield.

Plan and Sections of the Underground Workings of the New Chum line of Reef, Sandhurst.

Plans and Sections of the Underground Workings of the Garden Gully line of Reef, Sandhurst.

Plans and Sections of the Underground Workings of the Band and Albion Consols, Ballarat.

Plans and Sections of the Underground Workings of the Band of Hope, Serjeant's Freehold, Crescent, North Band and Barton, and Young Band Freehold.

Sixty-four Geological Maps (4-sheets) prepared under the instructions of Mr. A. R. C. Selwyn, late Government Geologist of Victoria, during the period 1858-68. These maps have been mounted in frames on a specially-designed stand.

Perspective Drawing.—Crushing Works Port Phillip Company, Clunes.

PHOTOGRAPHS.

Band and Albion Company's Mine, Ballarat	Edwards and Deebble's Pyrites Works, Sandhurst
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Township of Mitta Mitta	Rocky Mountain Tunnel
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Garfield Plant, Castlemaine	Daylesford Mines
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New Chum Line of Reef, from Old Chum Mine	Daylesford Township
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Pearl Company, Sandhurst (Interior of Battery)	Buninyong Estate Mines
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1. Eaglehawk Consolidated Company's Mine, Maldon	Duke and Timor Mines
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2. Do. do. do.	1. Parkins' Reef, Maldon
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3. Do. do. do.	2. Do. do. do.
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Duke Company's Mine, Timor	3. Do. do. do.
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Extended Hustlers' Freehold Company's Mine, Sandhurst	Band and Albion Company's Mine, Ballarat
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	Pearl Company's Mine, Sandhurst
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	Black Hill Company's Mine, Ballarat
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DIAMOND BITS.

Used by the Diamond Drills of Victoria.

Set by Mr. Walter Palmer, Mining Department, Melbourne.

New one, valued £86 9s. 4d. Old one, value £107 17s. These diamonds have bored upwards of 1000 feet in hard basalt, and are returned to be reset for further use.

BLANK BITS.

Varying in size from $1\frac{3}{4}$ in. to 5 in. in diameter, previous to being set with diamonds.

SPECIAL EXHIBITS.

* "The Eclipse." A patented process for the complete extraction of gold, silver, and all other metals contained in ores, earths, &c., either in solid or liquid state. Exhibited by Mons. A. A. Rampant, C.E.

- * Specimens from other colonies, and Specimens of Victorian Zeolites and Fossils. Exhibited by Mr. F. Atyeo, Carlton.
 - * Specimens, &c., by Jas. Stirling, and
 - * Specimens, &c., by Jas. Mitchell.
 - * Large Blocks of Freestone from Mount Difficult, near Stawell. Mr. Pigdon, contractor. Used for building Parliament House. Exhibition grounds
 - * Large Slabs of Sawn Basalt. Exhibition grounds.
- Collection of Gold-bearing Quartz Specimens, contributed by Messrs. Clark Brothers, from their claim on the "Irish Reef," Fryer's Creek. Exhibited by Mr. H. B. Nicholas, Castlemaine.
- No. 53. Brown Quartz, coated with oxide of iron, showing rich gold.
 - 54. Brown Quartz, with rich gold in cavity, also projecting from face in vine-leaf-like form.
 - 55A, 56B-60. Dark Brown Quartz Specimens, containing coarse gold in cavities, stained nearly black by oxide of iron.
 - 61-62. Light brown layers of Quartz, permeated and held together by veins of gold.
 - 63-65. Arsenical Copper and Iron Pyrites. From the 250 and 350 feet levels of the Duke Mine, Fryer's Creek. The yield of gold, after calcining, grinding, and amalgamating is from 2 ozs. 15 dwts. to 3 ozs. per ton.
 - 66-73. A Rare Collection of Graptolites. From the School Hill, Fryerstown, obtained from Mr. E. Rowe. The slabs of slate are of fine blue satin-like texture, marked with white patches.

MINING DEPARTMENT.

DIAMOND DRILL CORES.

Specimens of Cores of Rocks obtained with the diamond drills:

- No. 1. Basalt, overlying deep alluvial lead, from a depth of 217 feet. Madame Berry Mine, Smeaton.
- 2. Vesicular basalt, overlying deep alluvial lead. Smeaton.
- 3. Dense basalt, overlying deep alluvial lead. Smeaton.
- 4. Dense basalt, overlying deep lead, 108 feet. Crawford's Freehold Mine, Malmsbury.
- 5. Mesozoic Sandstone. From a depth of 950 feet. Colac.
- 6. Dense and Vesicular Basalt. Cardigan.
- 7. Basalt. Sebastopol.
- 8. Metamorphic Sandstone, and Serpentinous Slate, with small quartz veins. Heathcote.
- 9. Core of Diorite. From bore in tunnel at Hope Mine, Woodspoint.
- 10. Core of Slate. From a depth of 728 feet. Ballarat East.
- 11. Indurated Silurian Sandstone, containing small quartz veins. Moonta Mine, Sandhurst.
- 12. Dense Basalt. From a depth of 1666 feet. Sebastopol.

SPECIAL EXHIBITS.

- 74-75. Two Specimens of Gold-bearing Quartz. From the 2100 feet level of the New Chum and Victoria Company's Mine, Sandhurst.
 - 74. Contains Coarse Gold in the solid white quartz, with a little pyrites near to a slate face.
 - 75. Contains a larger amount of pyrites, and a little galena. Fine gold is plainly visible associated with the pyrites. Exhibited by Mr. H. B. Nicholas.
- Two specimens of Gold in Cervantite (the result of the decomposition of "Stibnite.") From the Minerva Reef, Costerfield. Exhibited by Mr. Henry Rosales.

* All the above outside of Main Victorian Mineral Court.

76. This is a good illustrating sample of a gold-bearing quartz reef from the depth of 1805 feet at the Great Extended Hustlers Company's mine, Sandhurst. White translucent quartz irregularly laminated with slate and arsenical pyritous veins. The gold is associated with the pyrites. Thereef is 30 feet wide, all crushed, and dividend paying. This sample of auriferous quartz from the depth of 300 fathoms, is identical with the quartz from the saddle formations of the shallower levels of the mine.
77. Sample of nearly pure white gold-bearing Quartz, from the depth of 1770 ft., of the New Chum Consolidated Co.'s mine, Sandhurst. It contains coarse and fine gold, and gold mixed with pyrites. The reef is from 4 ft. to 10 ft. wide. It has yielded profit and dividends amounting to £35,000, from the 1st January to the 31st October, 1888,—i.e., for ten months of the current year.
78. Another sample of quartz from the 1770 ft. level of the above mine, containing veins and patches of slate, and gold-bearing arsenical pyrites.
79. Sample of alluvial gold (1 oz.) from the Prince of Wales G.M. Co., Taradale. Some of the gold in this sample is of infrequent occurrence. It is like to gold wire from size of a pin to $\frac{1}{2}$ -th of an inch thick, it weighs well, is of fine quality, and worth from £4 to £4 ls. 6d. per oz.
80. Sample of alluvial gold (10 dwts. 12 grs.) from the New Golden Gate G.M. Co.'s mine, Taradale. Heavy weighing, fine quality, "shotty" gold, worth £4 ls. 6d. per oz.

E. J. DUNN'S EXHIBITS FROM BEECHWORTH DISTRICT.

No. 1 Case.

Unique specimen of Coarsely Crystallised Granite (Crystals, of orthoclase and oligoclase felspar, mica and quartz).
 Specimens, each some pounds weight of radiated fibrous Black Tourmaline.
 Prisms of Black Tourmaline, in white quartz.
 Garnets, from minute crystals up to the size of a walnut, in their matrix (granitic).
 Albite Crystals in granite.

ENHYDROS OF CHALCEDONY.

Very fine specimens containing fluid and a bubble of air.
 Broken Shells, of very large specimens.
 Broken Shells, coated with quartz crystals.
 Broken Shells, the interior filled with quartz.
 Broken Shells, botryoidal chalcedony inside.
 The clay and fine scales of chalcedony in which the enhydros occur.
 Quartz Crystal, enclosing particles of gold.
 Quartz Crystal, enclosing garnet crystals.
 Crystals of gold.
 Waterworn Pebble of Quartz, with gold.
 Glacial Pebbles (striated).

No. 2 Case.

46 different samples of Stream Tin Ore. From the Beechworth district.
 Including Rosin Tin Ore, Wood Tin Ore, Crystals of Cassiterite, &c.
 Tin Ore (black sand) in washdirt.
 Tin Ore (black sand) in cemented washdirt.
 Pebbles of Greisen, containing tin ore. Woolshed.

Tin Ore in the veinstone (enrite and greisen). Woolshed. The above are the first specimens of tin-stone in the veinstone found in Australia: Small piece of smelted Tin. This is the first tin smelted from tinstone from the lode in Australia. Date, 1870.
Tin ingot. Smelted by Hensley, at Reid's Creek.

No. 3 Case.

PRECIOUS AND ORNAMENTAL STONES.

DIAMONDS.

From El Dorado, Sebastopol, Wooragee and Lancashire Lead, Pilot Creek, and Napoleon.

RUBIES.

Reid's Creek, Yackandandah, and Chiltern.

SAPPHIRES.

From many localities, from colourless to deep blue, yellow, green, bi-coloured, &c.

TOPAZ.

Crystals of perfect form to well-rounded small pebbles, from colourless and limpid to beautiful blue and clouded. Granite country; most abundant about El Dorado.

GARNETS.

Common and cinnamon, crystalline to well-rounded. From granitic country; Woolshed furnished most. Garnet crystals, up to 2 inches in diameter, Barnawartha.

ZIRCON.

Red, and yellowish-red, and almost colourless well-rounded grains. From gullies in granite and silurian rock around Beechworth; occasionally stones fit for cutting are found.

CORUNDUM.

In rounded pebbles up to a pound in weight, black, grey, brown, blue, pink, magenta (Barklyite), and purple-coloured; in some cases translucent, and approaching nearly to ruby.

AMETHYST.

Beautiful crystals from granitic rock, El Dorado.

GEM SANDS.

From all the watercourses in the vicinity of Beechworth.

ANATASE.

In crystals.

TREMOLITE.

Pebbles, Kinchington Creek.

PEBBLES.

Red and yellow jasper, Lydianite, and other pebbles, derived from the glacial conglomerate and subsequently rounded, in Reid's and Woolshed Creeks.

Well-rounded small pebbles of quartz crystal, &c. Agates.

BLACK TOURMALINE.

Crystals and rounded prisms.

CHALCEDONY.

From the granite, Rocky Creek.

No. 4 Case.

CLAYS.

Red, black, yellow, white, &c., from the neighbourhood of Beechworth.

SANDS.

Many colours and degrees of fineness, also from vicinity of Beechworth.

No. 5 Case.

ROCK SPECIMENS.

Recent Tertiary, Mesozoic, or Palaeozoic (Glacial Conglomerate) and Silurian, (in which auriferous veins occur). Beechworth district.

No. 6 Case.

78 specimens of different granites and veins in granite. Beechworth district.

No. 7 Case.

Fluor Spar Mica (varieties). Oligoclase Felspar, Apatite, Hyalite, Chalcodonychert, Tremolite, Chlorite, Titaniferous Iron Ore, Limonite, Molybdenite.

Auriferous Quartz, from several reefs. Gold on slickensides.

Silicate of Alumina. Bethanga Ores. Gold in sandstone. Fossils (shell casts). U. Silurian; from Eldorado (Boulders from Glacial Conglomerate).

Wood Silicified Banksia Cones, from Tertiary Beds, El Dorado.

No. 8 Case.

Pebbles of Agate, &c. Varieties of Quartz, such as Morion, Citrine, Amethyst, Rock Crystal; do., penetrated by acicular crystals of tourmaline, opalescent quartz, semi-opal and tourmaline, semi-opal chert, &c.

No. 9 Case.

A Series of Quartz Crystals. Colourless and Transparent Black Amethyst, Babel Quartz, Hacked Crystals, Capped Crystals, Crystals broken and reunited, &c.

No. 10 Case.

Sixty-five Specimens of Volcanic Rocks, Clunes. Zeolites and other minerals from Victoria.

SPECIAL EXHIBITS.

Procured by Mr. William Bradford from various mines at Ballarat:—

1. Section of the "Indicator" lode, showing parallel face of grit, 250 feet level.
2. Section of the "Indicator" lode, 740 feet level, Queen Company's Mine; Ballarat East. The "Indicators" are thin veins of pyrites, and can be traced for miles; they are nearly vertical, intersected by quartz veins containing rich patches of gold, frequently in lumps, along the line of intersection.
3. Sample of Alluvial Washdirt, from the Mount Rowan Mine, Ballarat.
4. Sample of Alluvial Washdirt. Reform Company's Mine, Haddon.
5. Sample of "Tailings" after washing. Reform Company's Mine, Haddon.
6. Pyrites, refuse "tailings."
7. Pyrites, refuse.
8. Pyrites, cleaned; yield, 4 oz. of gold per ton.
9. Battery "tailings" before treatment.

COLLECTION OF FAC-SIMILES OF LARGE NUGGETS OF
GOLD FOUND IN VICTORIA.

No.	Date When Found.	Name of Nugget.	Name of Place from which the Nugget was Obtained.	Depth from Surface.	Gross Weight.	Approximate Value.
				ft. in.	oz. dwt.	£
1	11 June 1858 ..	Welcome ..	Bakery Hill, Ballarat ..	180 0	2,195 0	*8,780
2	5 Jan. 1871 ..	Precious ..	Catto's Paddock, Berlin ..	12 0	1,717 0	6,868
3	31 May 1870 ..	Viscount ..	John's Paddock, Berlin ..	15 0	1,121 10	4,420
4	3 Oct. 1870 ..	Canterbury ..	Berlin ..	6 6	896 14	3,536
5	11 July 1872 ..	The Schlemm ..	Nr. Wilson's Lead, Dunolly ..	3 0	533 5	1,912
6	17 April 1871 ..	Kum Tow ..	Catto's Paddock, Berlin ..	12 6	795 19	2,872
7	March 1861 ..	Platypus ..	Robinson Crusoe Gully, Bendigo ..	5 0	377 6	1,508
8	About the year 1858 ..	Beauty ..	Kangaroo Gully, Bendigo ..	9 0	242 0	968
9	11 July 1873 ..	Unnamed ..	Kitty's Lead, Buninyong ..	0 3	250 15	920
10	Nov. 1872 ..	Spondulix ..	Eureka Gully, Jordan's ..	8 0	155 10	520
11	18 July 1878 ..	Lt. Highlander ..	Corindhap ..	40 0	173 18	712
12	12 Dec. 1877 ..	Christmas Gift ..	Corindhap ..	40 0	173 18	912
13	2 April 1872 ..	Crescent ..	John's Paddock, Berlin ..	2 0	179 0	704
14	10 May 1871 ..	Needful ..	Catto's Paddock, Berlin ..	12 0	249 0	984
15	24 July 1879 ..	Unnamed ..	Garden Flat, Majorca ..	..	93 9	372
16	January 1881 ..	The Inglewood ..	Near Inglewood ..	..	201 16	800
17	March 1871 ..	Unnamed ..	Wedderburn ..	..	20 16	83
18	28 Dec. 1877 ..	Unnamed ..	Elysian Flat, Sandhurst ..	9 0	75 5	292
19	24 March 1880 ..	Unnamed ..	Working Miners' Claim, Homebush ..	170 0	80 0	320
20	3 April 1880 ..	Unnamed ..	Little Wonder Claim, Taradale ..	140 0	111 19	440
21	11 Dec. 1878 ..	Unnamed ..	Rising Sun Mine, Ballarat ..	50 0	41 8	164
22	26 July 1881 ..	Unnamed ..	Dunolly ..	15 0	92 0	370
23	18 July 1881 ..	The Boort ..	Boort ..	..	61 0	243
24	11 July 1875 ..	Lothair ..	Lothair Co.'s Mine, Clunes ..	307 0	107 4	308
25	9 Aug. 1880 ..	Unnamed ..	Shicer's Gully, Wedderburn ..	330 0	99 0	380
26	January 1871 ..	Unnamed ..	Key Co.'s Mine, Creswick ..	..	32 0	120
27	25 Dec. 1875 ..	Unnamed ..	White Horse Ranges, Ball. ..	50 0	41 8	164
28	23 May 1878 ..	Unnamed ..	Killais Creek, Wood's Point ..	12 0	113 12	452
29	31 Dec. 1880 ..	The Yandoit ..	Yandoit ..	15 0	62 0	282
30	14 Sept. 1881 ..	Unnamed ..	Old Dunolly ..	7 0	85 0	340
31	13 Dec. 1879 ..	Unnamed ..	Green Hills, near Stawell ..	40 0	40 13	152
32	April 1873 ..	The Oldham ..	Turton's Creek, nr. Foster ..	2 0	36 0	144
33	1 Feb. 1877 ..	Unnamed ..	Chinaman's Flat, Maryborough ..	200 0	50 19	200
34	11 Mar. 1871 ..	The Virtue ..	Chinaman's Flat, Maryborough ..	220 0	30 0	116
35	14 April 1873 ..	Alma No. 2 ..	Alma Consols Mine, Maryborough ..	120 0	19 10	60
36	8 Aug. 1872 ..	Unnamed ..	Broomfield's Gully, Creswick ..	100 0	24 7	96
37	14 April 1873 ..	Alma No. 1 ..	Alma Consols Mine, Maryborough ..	120 0	145 14	500
38	26 Mar. 1880 ..	Unnamed ..	Little Wonder Claim, Taradale ..	140 0	26 9	100
39	11 June 1887 ..	Lady Brassey ..	Midas Company's Mine ..	..	167 5	609
40	1887 ..	Unnamed ..	Midas Company's Mine ..	..	39 0	156
41	March 1887 ..	Unnamed ..	Midas Company's Mine ..	..	37 0	148
42	Sept. 1887 ..	Unnamed ..	Tarnagulla ..	..	40 13	160
43	8 Aug. 1887 ..	Unnamed ..	Tarnagulla ..	..	2 5	8
44	Sept. 1887 ..	Unnamed ..	Midas Company's Mine ..	..	32 0	128
45	23 Sept. 1887 ..	Lady Loch ..	Midas Company's Mine ..	..	617 0	2,557
46	Oct. 1887 ..	Unnamed ..	Midas Company's Mine ..	..	36 10	144
47	11 April 1888 ..	Unnamed ..	Midas Company's Mine ..	..	32 0	128
48	23 July 1888 ..	Unnamed ..	Inglewood ..	..	42 18	172
49	— ..	Unnamed ..	Dunolly	370 12	1,560
50	13 Sept. 1887 ..	Unnamed ..	Merrijig Creek	5 5	20

* Sold for £10,000.

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